M E E T I N G N O T I C E A N D A G E N D A

TECHNICAL ADVISORY COMMITTEE
OF THE
SEASIDE BASIN WATER MASTER

DATE: Wednesday, September 14, 2016
MEETING TIME: 1:30 p.m.
Monterey Regional Water Pollution Control Agency Offices
5 Harris Court, Building D (Ryan Ranch)
Monterey, CA 93940

If you wish to participate in the meeting from a remote location, please call in on the Watermaster Conference Line by dialing (712) 432-1212. Use the Meeting ID 355890617. Please note that if no telephone attendees have joined the meeting by 10 minutes after its start, the conference call will be ended.

OFFICERS
Chairperson: Roger Hulbert, California American Water Company
Vice-Chairperson: Joe Oliver, MPWMD

MEMBERS
California American Water Company | **City of Del Rey Oaks** | **City of Monterey**
City of Sand City | **City of Seaside** | **Coastal Subarea Landowners**
Laguna Seca Property Owners | **Monterey County Water Resources Agency**
Monterey Peninsula Water Management District

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The next regular meeting date will be in November. The date will be announced via email to TAC members in early November. The meeting will be held on a Wednesday at 1:30 p.m. at the MRWPCA Board Room.	

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SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 14, 2016
AGENDA ITEM:	2.A
AGENDA TITLE:	Approve Minutes from the August 10, 2016 Meeting
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

Draft Minutes from this meeting was emailed to all TAC members. Any changes requested by TAC members have been included in the attached version.

ATTACHMENTS:	Minutes from this meeting
RECOMMENDED ACTION:	Approve the minutes

D-R-A-F-T
MINUTES

Seaside Groundwater Basin Watermaster
Technical Advisory Committee Meeting
August 10, 2016

Attendees: TAC Members

City of Seaside – Rick Riedl (via telephone)
California American Water – Roger Hulbert
City of Monterey – Laurie Williamson (via telephone)
Laguna Seca Property Owners – No Representative
MPWMD – Jon Lear
MCWRA – Peter Kwiek
City of Del Rey Oaks – No Representative
City of Sand City – Leon Gomez (via telephone)
Coastal Subarea Landowners – No Representative

Watermaster
Technical Program Manager - Robert Jaques

Consultants
None

Others
MRWPCA-Bob Holden

The meeting was convened at 1:34 p.m. after a quorum had been established.

1. Public Comments
There were no public comments.

2. Administrative Matters:

A. Approve Minutes from the July 13, 2016 Meeting
On a motion by Ms. Williamson, seconded by Mr. Gomez, the minutes from this meeting were unanimously approved as presented.

3. MRWPCA's Title 22 Engineering Report for the Pure Water Monterey Groundwater Replenishment Project
Mr. Jaques introduced this agenda topic. Mr. Holden then provided a PowerPoint presentation including the following points:

- He described the purpose of the public hearing as being to obtain public input on the project.

- He described the Pure Water Monterey project's purpose is to provide 3,500 acre feet per year of water to CAW by storing it in the Seaside Groundwater Basin for subsequent recovery and potable use.

- He said the facility will be completely new and separate from the existing Salinas Valley Reclamation Project facilities to avoid issues related to the Bureau of Reclamation loan that was used to help fund the Salinas Valley Reclamation Project facilities.

- The Pure Water Monterey project is expected to begin delivering water in early 2018. The first delivery will be approximately 1,000 acre feet to CAW as its operational reserve, then another 1,000 acre feet for drought reserve.

- He described the treatment steps which include ozonation, membrane filtration, reverse osmosis, advanced oxidation, and product water stabilization.

- A demonstration facility has been built for purposes of conducting tours and providing public education on the treatment processes.

- No DDT or dieldrin has been detected in the pilot testing product water. The Pure Water Monterey treatment steps are very effective at removing these constituents.

- Constituents of Emerging Concern were very well removed by the treatment processes.

- The pilot study product water met all applicable drinking water standards.

- The Injection Facilities will be located east of General Jim Moore Boulevard on the former Fort Ord.

- Monitoring wells will monitor water quality in the Paso Robles and Santa Margarita aquifers.

- CEQA modeling work was done by Hydrometrics using the Watermaster's groundwater model. Mr. Holden described the method that Title 22 prescribes for determining travel time from injection wells to the nearest production well.

- They will probably use intrinsic tracers rather than injected tracers due to problems associated with using injected tracers, but they are still looking into this possibility. Tracers are used to determine travel time in the groundwater aquifers.

- Construction is likely to start in early 2017 and the facilities are expected to begin producing water for testing purposes in late 2017. Complete construction and delivery of water to the Seaside Basin is projected to occur in March 2018

- He described the regulatory compliance issues which include the number of log removals of pathogens, RRT, chemical constituent limits, primary and secondary and MCLs for drinking water, and anti-degradation policy requirements.

- He noted that Water Factory 21 in Orange County discovered that dioxane and NDMA were getting through their R0 process and their Response Retention Time plan came into play. At the time that project was developed there were no regulatory requirements for these particular constituents. The Pure Water Monterey advanced oxidation process removes these constituents. So the Pure Water Monterey's response retention time would likely only come into play if a new constituent of concern emerges. They would probably use granular activated carbon for wellhead treatment, but they do not anticipate that this will be necessary.

- He discussed the groundwater quality field programs that were used to assess geochemical and other issues.

- Although the city of Seaside well is the closest well to the injection wells, the travel time to reach there is quite long-over a year.

- Comments will be accepted up to ten days after the public hearing, and then the Final Engineering Report will be prepared and submitted to the Department Drinking Water for permit issues purposes. Comments should be sent to MRWPCA.

Mr. Riedl pointed out that considerable time may be needed to process the project for approvals from the City of Seaside. He expressed concern about the discussion in the Engineering Report with regard to the Response Retention Time and proposed response actions if any groundwater quality issues are encountered. The Engineering Report includes asking pumpers to shut down wells as one of the possible response actions, and said he felt this was unrealistic in situations where there was no other source of water to supply the demand. Mr. Riedl questioned why Seaside had not been invited to participate in the development of the response actions. Mr. Holden responded that as the Response Plan is further developed and refined, Seaside, CAW, and others will be involved. Mr. Holden described experience with Response Retention Time issues in other projects and some treatment methods that could be used to respond to groundwater quality problems.

Mr. Riedl asked for information on the schedule so he could estimate staff time for Seaside's approval processes. He also asked about "water banking" which must be approved by the Watermaster. Mr. Jaques commented that the Watermaster raised this with MRWPCA during the CEQA process. Mr. Holden said the water will become CAW's under the water purchase agreement that is currently before the Public Utilities Commission for approval. He went on to say that it was his understanding that CAW would be the party to pursue a storage agreement with the Watermaster. Mr. Jaques asked Mr. Hulbert to pursue this, noting that this was a topic that Mr. Sabolsice had brought up earlier but decided to defer until more details about the project and water quality were available.

Mr. Hulbert asked if any evaluation of threshold odor number issues had been performed. Mr. Holden said he was not sure but would look into this.

Mr. Riedl asked some questions about CAW's 700 acre feet per year groundwater replenishment commitment to the Watermaster and there was some discussion on this matter.

Mr. Riedl noted that on page 10 of the agenda packet it says that the number of the injection wells is uncertain until more testing is completed. Mr. Holden explained that the project will be moving forward with well drilling tests as soon as necessary approvals can be obtained. He also discussed "buffer zone" questions with Mr. Riedl. There was also some discussion about the taste-testing findings when people tasted the water.

Mr. Jaques said he would send a letter containing the comments contained on page 6 of today's agenda packet to MRWPCA.

Mr. Hulbert commented that using "bottled water" as a potential response tool is not realistic.

Mr. Holden said he would provide a copy of his PowerPoint slides to Mr. Jaques who in turn will send them to TAC members.

4. Initial Discussion Regarding Scope of Work for Monitoring and Management Program (M&MP) for FY 2017

Mr. Jaques summarized the agenda packet materials for this item. Mr. Lear and Mr. Jaques clarified some of the items during discussion of this topic. Mr. Lear said that the CASGEM reporting process was moving along after some of the batch-uploading problems that DWR had encountered with the system had been corrected. He said that the Watermaster's data will probably be input within the next month. He also said that data updates would be made each quarter into the CASGEM system.

No changes to the Draft Scope of Work for Monitoring and Management Program (M&MP) for FY 2017 were proposed or requested, so the Draft version will be finalized for presentation to the TAC for approval at its September meeting.

5. Schedule

Mr. Jaques summarized the agenda packet materials for this item and highlighted several of the items that are discussed on page 25 the agenda packet.

6. Other Business

Mr. Jaques said that with the retirement of Mr. Oliver, who has been the Vice Chairperson, it would be appropriate for the TAC to elect a replacement Vice Chairperson. Mr. Hulbert said he had discussed this with Mr. Lear, and that Mr. Lear had indicated a willingness to take on this responsibility. Ms. Williamson said she did not know Mr. Lear and he introduced himself. Mr. Jaques will put election of a new Vice Chairperson on the next TAC agenda as an action item.

7.Set Next Meeting Date

The next regular meeting will be held on Wednesday September 14, 2016 at 1:30 p.m. at the MRWPCA Board Room.

The meeting adjourned at 2:50 p.m.

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 14, 2016
AGENDA ITEM:	2.B
AGENDA TITLE:	
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

Joe Oliver from MPWMD had been serving as Vice Chairperson for the TAC for some time, but has recently retired. Therefore, it is appropriate for the TAC to elect a new Vice Chairperson.

Mr. Lear, also from MPWMD, has indicated he would be willing to take on this responsibility, but the TAC may also nominate others for the position. Once the Chair has called the nominations closed, the TAC would then vote to select the new Vice Chairperson.

The newly elected Vice Chairperson would assume the position immediately following his or her election.

ATTACHMENTS:	None
RECOMMENDED ACTION:	Elect a New Vice Chairperson of the TAC

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 14, 2016
AGENDA ITEM:	2.C
AGENDA TITLE:	Report on MRWPCA's Public Hearing for its Title 22 Engineering Report for the Pure Water Monterey Groundwater Replenishment Project
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY: On August 22, 2016 I attended the Public Hearing held by MRWPCA to inform the public about the Draft Title 22 Engineering Report it has prepared for its Pure Water Monterey Groundwater Replenishment Project. There were so many attendees that the MRWPCA Board Room, where the Hearing was conducted, was too small to provide seating for all the attendees. Some were forced to stand outside in the hallway.

I submitted the attached letter and supplemental email comments. The City of Seaside submitted its own comments which are also attached.

The following were what I considered to be the significant comments that were provided orally during that Hearing:

<u>Department of Drinking Water (DDW), MRWPCA, and MRWPCA's Consultants:</u>

- The RWQCB will actually issue the permit for the Project after DDW approves it.
- DDW provides recommendations to the RWQCB for inclusion in the Permit.
- An Operations Optimization Plan must be submitted by the applicant (MRWPCA) and must be approved by DDW prior to startup of operations.
- Phase 1 of the Project will only include 2 injection wells in order to confirm technical issues before putting the additional wells into operation. Up to 4 vadose zone injection wells and 4 deep injection wells may be installed (for a total of up to 8 injection wells).
- Project Project startup is early 2018 for actual water delivery to the Seaside Basin.

<u>Members of the Public:</u>

- Some did not feel that the testing had been adequate.
- One person felt that nutrients needed further treatment, suggesting that denitrification should be included in the treatment process before water is discharged from the outfall.
- Expressed public health concerns about using highly toxic water from the Blanco Drain, and other of the source waters (e.g. Reclamation Ditch) and wondered if these had been included in the water that was tested in the pilot testing water. One person noted that the RWQCB is now in the process of considering 303(d) listing of these source waters.
- Wondered what would be the means of disposing of residues (which might contain toxics) from the treatment processes.
- Several expressed support for the Project.

ATTACHMENTS:	1. Comment letter submitted by Watermaster 2. Supplemental comments submitted by Watermaster via email 3. Comments submitted by City of Seaside
RECOMMENDED ACTION:	None required

Seaside Groundwater Basin Watermaster
PO Box 51502
Pacific Grove, CA 93950

August 22, 2016

Yohana Vargas
Contracts Administrator
Monterey Regional Water Pollution Control Agency
5 Harris Court, Building D
Monterey, CA 93940

Subject: Pure Water Monterey Project Title 22 Engineering Report

The Seaside Basin Watermaster submits the following comments on this document:

The proposed RRT plan may be overoptimistic in terms of the time that will be required to (1) assess results with DDW and RWQCB (only 1 week is provided for this process), and (2) procure a safe interim drinking water supply (only 1 week is provided for this process).

- The Report states that the time required for MRWPACA, DDW, and RWQCB to assess the sample results and make decisions regarding the appropriate response(s) is estimated to be 1 week. It seems unlikely that those two regulatory agencies could meet with project staff, review the findings, and reach agreement on decisions to address the findings in such a short time.
- The Report states that the time required for MRWPCA to collaborate and coordinate with regulatory agencies and stakeholders to suspend replenishment operations and, if necessary, to provide relief measures or an alternative water supply is estimated to be one week. The Report describes the steps that would be carried out in this process as:
    - Notify Well Owner and Coordinate Appropriate Actions
    - Confirmation Sampling in Monitoring Wells Adjacent to Injection Well Field
    - Initiate Accelerated Groundwater Quality Sampling in Downgradient Monitoring Wells and Water Supply Wells; Anticipate Downgradient Water Supply Wells that may be Impacted
    - Suspend Operation of the Drinking Water Well if Impacted
    - Consider Blending Options
    - Shift Production from Impacted Well to other Existing Wells
    - Initiate Wellhead Treatment Planning and Secure Wellhead Treatment as Appropriate
    - Continue Well Suspension, Provide Bottled Water, and/or Consider Additional Wells

It is difficult to believe that all of these steps could be carried out in a one week period. In particular, initiating and procuring wellhead treatment systems and putting them into operation, installing additional wells, and blending water sources. The Report uses the term "…replace the potable water supply in some other manner…" but does not identify what those might be. This suggests that no other manner(s) could be identified by the authors of the Report.

It would be good for the Project sponsor to reexamine these issues and to revise its RRT analysis accordingly to reflect more realistic timelines for certain of the actions.

The Report notes that routine groundwater monitoring reports and other types of Project reports will be submitted to the State. It would be good to have the Seaside Basin Watermaster included in this

distribution so the Watermaster can stay abreast of impacts and actions associated with the Project and its compliance with applicable regulatory requirements.

Thank you for your attention to these comments. If you have any questions please contact me at (831) 375-0517 or by email at bobj83@comcast.net.

Sincerely,

Robert Jaques, PE
Technical Program Manager
Seaside Basin Watermaster

Bob Jaques

From: Bob Jaques [bobj83@comcast.net]
Sent: Wednesday, August 24, 2016 5:34 PM
To: 'Yohana Vargas'
Cc: 'Bob Jaques'; 'Rick Riedl'; 'Roger.Hulbert@amwater.com'
Subject: RE: Comments on T-22 Engineering Report

Thanks Yohana.

I just found in my notes from the Watermaster TAC's recent meeting at which the TAC received Mr. Holden's presentation and discussed the Engineering Report, that two additional comments had been raised.

1. The California American Water representative commented that use of "bottled water" as a response action in the event of groundwater quality problems being discovered was not a realistic or viable response action.
2. The City of Seaside representative commented that asking well owners to discontinue use of their well as a response action in the event of groundwater quality problems being discovered was not a viable action in situations where there is no other source of water that could be used to supply the demand. That is the case in the City of Seaside's Municipal Water System.

Can you please include these comments along with those in the letter I sent you?

Thanks,

Bob Jaques
Technical Program Manager
Seaside Basin Watermaster
83 Via Encanto
Monterey, CA 93940
Office: (831) 375-0517
Cell: (831) 402-7673

From: Yohana Vargas [mailto:yohana@mrwpca.com]
Sent: Wednesday, August 24, 2016 10:27 AM
To: Bob Jaques
Subject: RE: Comments on T-22 Engineering Report

Hi Bob,

I have received your e mail with comments from the Seaside Basin Watermaster on the Title 22 Engineering Report for the Pure Water Monterey.

Thank you,

Yohana

From: Bob Jaques [mailto:bobj83@comcast.net]
Sent: Wednesday, August 24, 2016 10:18 AM
To: Yohana Vargas
Cc: 'Bob Jaques'
Subject: Comments on T-22 Engineering Report

Yohana,

Bob Jaques

From: Rick Riedl [RRiedl@ci.seaside.ca.us]
Sent: Thursday, September 01, 2016 4:37 PM
To: Yohana Vargas
Cc: Russ McGlothlin; Craig Malin; Rick Medina; Bob Jaques
Subject: MRWPCA Pure Water Monterey Groundwater Replenishment Project

I attended the presentation on the subject project on August 22, 2016. The presentation was made in accordance with the State Water Resources Control Board Division of Drinking Water requirements for a public hearing to solicit input from the public. I am submitting the following comments and questions in accordance with this requirement.

1) The City of Seaside should be considered a stakeholder in developing any plans that may affect the use or alteration of lands within city limits and/or water from the Seaside Basin Aquifer.

2) The presentation stated that all of the water injected into the Seaside Basin would be extracted by Cal Am. Considering there are several users that have wells that produce water from this basin, how will this be ensured?

3) Is it necessary for the City of Seaside to enter into a water purchase agreement with MRWPCA and MPWMD? If not, could the City of Seaside purchase water from this project?

4) Has it been demonstrated that there is not an aquitard or aquiclude between the vadose zone and the Santa Margarita aquifer within the area being consider for the injection wells? If not, how would production wells installed in the Santa Margarita formation, including the Cal Am well(s), benefit from water injected into the vadose zone? What is the estimated transient time for water injected at the vadose wells to the Santa Margarita aquifer?

5) Would the water injected into the aquifer be regulated by the surface water treatment rule? If so, would all entities using the Seaside Basin be subject to this rule including reporting requirements? If so, please describe potential additional monitoring, treatment, analytical, and/or reporting requirements. Also, who would be responsible for any associated costs?

6) It was reported that a possible response action to an upset in the GWR process was to shut down the production wells. The City of Seaside has a production well in the Seaside Basin that serves many consumers. How will these consumers be supplied water if the GWR project forces a shut-down of the City of Seaside's sole source of water?

Thank you

Rick Riedl
City Engineer
City of Seaside
phone (831) 899-6884

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 14, 2016
AGENDA ITEM:	2.D
AGENDA TITLE:	Sustainable Groundwater Management Act (SGMA) Update
PREPARED BY:	Robert Jaques, Technical Program Manager

At the State level:
Attached is a recent progress report provided by DWR. DWR has also announced that at the September 21, 2016 meeting of the California Water Commission (CWC), DWR will present the Final Approved Basin Boundary Modifications, which takes into consideration public comments and CWC input submitted earlier this year. DWR will publish the final basin boundary modifications in September 2016, to be included in the Interim Update of Bulletin 118. The next submission period for Basin Boundary Modifications Requests is scheduled for 2018.

All actions required of the Watermaster by DWR have been, or are currently being, fulfilled. The attached progress report is for information only, as it does not impose any additional requirements on the Watermaster.

At the Monterey County level:
Attached are the most recent announcements provided by the facilitator for Monterey County's Collaborative Work Group and Stakeholder meetings. As previously reported, I am not currently attending these meetings as their work is still in the early formative stages and no topics of direct interest or impact to the Watermaster are being discussed. However, at an appropriate point in the future, once the decisions have been made on creation of one or more Groundwater Sustainability Agencies (GSAs) for the non-adjudicated portions of the Salinas Valley Groundwater Basin, I will resume attending meetings and will provide input on issues pertinent to the Watermaster.

ATTACHMENTS:	1. DWR Progress Report 2. Announcements from Monterey County's SGMA Collaborative Work Group and Stakeholder Meetings Facilitator
RECOMMENDED ACTION:	None required – information only

SUSTAINABLE GROUNDWATER MANAGEMENT (SGM) PROGRAM NEWS

July 27, 2016

The California Department of Water Resources provides bi-weekly updates regarding SGM Program information to its stakeholders and interested parties.

Best Management Practices Update – Development Framework and Survey Available

Now available online is the Best Management Practices (BMP) Development Framework (Framework) which outlines DWR's approach and timeline for development of BMPs. The framework describes how to engage in the development of BMPs and presents the schedule for developing the initial set of BMPs.

DWR has developed a Best Management Practices (BMP) Survey to help rank initial BMP development. The Survey is an opportunity for practitioners and members of the public to provide direct input on the BMPs considered of importance in their respective basins. The Survey proposes a number of potential BMPs respondents can rank and asks if there are additional BMPs respondents would like addressed. The Survey requires respondents to identify their name and affiliation.

Contacts:

Heather Shannon, DWR Sustainable Groundwater Management Program
(916) 653-4993, Heather.Shannon@water.ca.gov

Lauren Hersh, DWR Public Affairs Office
(916) 653-2639, Lauren.Hersh@water.ca.gov

Groundwater Sustainability Agency (GSA) Formation Notification

DWR's GSA website provides GSA frequently asked questions and GSA formation guidelines for local agencies to use when deciding to become or form a GSA. Please visit the GSA Formation Table to view the notifications DWR has received and posted. DWR continues to review and track GSA formation notifications and updates the GSA Interactive Map regularly. The GSA Interactive Map now shows the boundaries of Exclusive GSAs and the statutory boundaries of the exclusive local agencies identified in SGMA. As of July 25, 2016:

- Many local agencies have submitted GSA formation notices in multiple basins and counties.
- Some local agencies are submitting multiple notices for different areas in the same basin.
- 108 separate GSA formation notices have been submitted.
    - 64 have overlap in one or more basins that must be resolved.
    - 31 are "Exclusive GSAs" in one or more basins.
    - 13 have an active 90-day period in one or more basins.
    - 5 notices are incomplete.
- 74 basins have GSAs.

    - 44 basins are high- or medium-priority.
    - 30 basins are low- or very-low priority.
- 27 counties have GSAs.
- In order to avoid potential intervention by the State Water Resources Control Board (Water Code Section 10735.2) the entire basin must be covered by one or more GSAs by June 30, 2017, or an Alternative Plan that covers the entire basin must have been submitted to DWR by January 1, 2017.

Contacts:
Mark Nordberg, DWR Sustainable Groundwater Management Program
(916) 651-9673, Mark.Nordberg@water.ca.gov

Lauren Hersh, DWR Public Affairs Office
(916) 653-2639, Lauren.Hersh@water.ca.gov

Facilitation Support Services Available

DWR has secured additional funding to provide facilitation support services to local agencies and water management groups. DWR continues to accept new applications and provide additional support. The Facilitation Support Service Program connects water management groups with professional facilitators to support local public agencies seeking to meet requirements of the Sustainable Groundwater Management Act (SGMA), including forming groundwater sustainability agencies (GSAs) and developing groundwater sustainability plans (GSPs). Facilitation support services from contracted professionals include strategic planning, stakeholder assessments, meeting facilitation, mediation, governance assessment, and public outreach services. Requests for facilitation support services will be evaluated on a regular basis and support will vary based on need and funding availability.

For more information about applying for Facilitation Support Services, please view the Information for Applicants and Supplemental Information for SGMA Implementation. To discuss applications for Facilitation Support Services, please contact your DWR Region Office Representative:

- **Northern Region Office (Red Bluff)** – Mary Randall, Mary.Randall@water.ca.gov
- **North Central Region Office (West Sacramento)** – Hong Lin, Hong.Lin@water.ca.gov
- **South Central Region Office (Fresno)** – Charles McKenzie, Charles.McKenzie@water.ca.gov
- **Southern Region Office (Glendale)** – Brian Moniz, Brian.Moniz@water.ca.gov

Contacts:
Lauren Hersh, DWR Public Affairs Office
(916) 653-2639, Lauren.Hersh@water.ca.gov

Tom Filler, DWR Sustainable Groundwater Management Program

(916) 653-5272, Thomas.Filler@water.ca.gov

Basin Boundary Modifications Update

DWR held a series of public meetings in mid-July to present the Draft Approved Basin Boundary Modifications, provide an overview of the Basin Boundary Modification Request System (BBMRS), technical review process, answer clarifying questions and receive further public comments on the Draft Approved Basin Boundary Modification submissions.

Public comments were summarized and presented to the California Water Commission on July 21, 2016, providing additional opportunity for public comment. Following the consideration and potential incorporation of comments heard, DWR will publish the final basin boundary modifications in September 2016, to be included in the Interim Update of Bulletin 118. View the memorandum to the California Water Commission here.

For more information regarding California's groundwater basins please visit the Basin Boundary Modifications webpage.

To discuss modification submissions please contact your DWR Region Office Representative:

- **Northern Region Office (Red Bluff)** – Bill Ehorn, Bill.Ehorn@water.ca.gov
- **North Central Region Office (West Sacramento)** – Bill Brewster, Bill.Brewster@water.ca.gov
- **South Central Region Office (Fresno)** – Dane Mathis, Dane.Mathis@water.ca.gov
- **Southern Region Office (Glendale)** – Tim Ross, Timothy.Ross@water.ca.gov

Local agencies can locate their respective Region Office Representative by accessing the map-tool here.

Contacts:
Tim Godwin, DWR Sustainable Groundwater Management Program
(916) 651-9223, Timothy.Godwin@water.ca.gov

Lauren Hersh, DWR Public Affairs Office
(916) 653-2639, Lauren.Hersh@water.ca.gov

Water Available for Groundwater Replenishment

The Sustainable Groundwater Management Act (SGMA) directs DWR to prepare and publish a report on water available for replenishment of groundwater in California by December 31, 2016. SGMA stakeholder and advisory groups have provided input to DWR that will help guide the content and scope of the Water Available for Groundwater Replenishment (WAFR) Report. DWR has developed a draft white paper describing concepts, challenges, uncertainties, and a potential technical approach to estimating water available for groundwater replenishment. The draft report on WAFR will be released in December 2016 for public review

and comment. For more information please visit DWR's Water Available for Groundwater Replenishment webpage.

Contacts:
Lauren Hersh, DWR Public Affairs Office
Lauren.Hersh@water.ca.gov (916) 653-2639

Romain Maendley, DWR Statewide Integrated Water Management
Romain.Maendly@water.ca.gov (916) 651-9274

Adjudicated Basin Reporting

The Sustainable Groundwater Management Act (SGMA) requires an adjudicated basin Watermaster or local agencies to annually report water information beginning April 1, 2016. DWR has created an online adjudicated basin reporting system that allows the Watermaster or local agencies to report the required information and allows the public to review the submitted information. Reported information, where available, includes groundwater elevation, groundwater extraction, surface water available for groundwater recharge, total water use, and change in groundwater storage. For more information on adjudicated basin reporting, please visit: http://www.water.ca.gov/groundwater/sgm/adjudicated.cfm

Contact:
Tim Ross, DWR Southern Region Office (Glendale)
(818) 549-2345, Timothy.Ross@water.ca.gov

SGMA Definitions and Groundwater Glossary

SGMA provided California with a roadmap for sustainably managing our groundwater, and it also came with its own lexicon. Looking for the definition of "Undesirable result" or "De minimis extractor"? It's right here. Additional important groundwater terms and definitions are included in the Groundwater Information Center's Groundwater Glossary.

New and Notable

CASGEM, DWR/Local Groundwater Monitoring Partnership Expands and Improves

Groundwater elevation data is foundational to improving the management and sustainability of California's groundwater resources. The overall purpose of the California Statewide Groundwater Elevation Monitoring Program (CASGEM) is to track seasonal and long-term groundwater elevation trends in basins statewide. In April, DWR released a Status Report to the Legislature and the Governor. Between 2012 and 2015 a lot has been accomplished by local entities and DWR including:

- The latest update shows that 94 percent of the state's high- and medium-priority basins are compliant with the minimum groundwater level monitoring standards of the CASGEM Program.

- The number of groundwater basins monitored has increased from 152 in 2013 to 239 by the end of 2015.

CASGEM data will be necessary for assessing the impact of the ongoing drought and implementation of SGMA. DWR is working with local agencies to achieve 100 percent participation for all high- and medium-priority basins, as well as increased participation for lower priority basins. To be eligible for State water grants, high- and medium-priority basins must participate in CASGEM, with exemptions for disadvantaged communities.

DWR Op-Ed on Stanford Groundwater Report

Stanford University researchers recently released a report stating California has a groundwater "windfall". Characterizing deep-aquifer water as fresh misleads. Using deeper water would not be a sustainable enterprise. A more sustainable evaluation of groundwater takes into consideration how much of the aquifer can truly be withdrawn before creating significant and unreasonable impacts to the surrounding agricultural, urban, industrial, domestic, and environmental groundwater uses. Read the full op-ed here.

Connect with CA DWR on Facebook, Twitter, and YouTube!

Visit SaveOurWater.com to find out how everyone can do their part, and visit http://drought.ca.gov to learn more about how California is dealing with the effects of the drought. The Department of Water Resources operates and maintains the State Water Project, provides dam safety and flood control and inspection services, assists local water districts in water management and water conservation planning, and plans for future statewide water needs.

August 5, 2016 Monterey County Collaborative Work Group Meeting in Brief

Work Group members reviewed GSA options and continued refining governance options for the groundwater sustainability agency. CWG members focused their discussion around GSA legal structure, composition, and selection of the governing board, and acknowledged that in the future they will need to discuss initial funding, staffing, and other details to determine how the GSA will proceed. The group considered a governance structure with 11 representative seats to anchor its discussion of the potential governing board composition and GSA legal structure. View the full summary here.

New Materials Now Posted on www.SalinasGroundwater.org

The following materials are now available online:
8/5 Work Group meeting summary
8/18 Work Group agenda and materials

Save the Date: Groundwater Stakeholder Forum #2

September 8, 5:30-7:30 pm
Sherwood Hall, 940 N. Main St, Salinas

Everyone who is interested in groundwater management should plan to attend the Stakeholder Forum public workshop, where all the major decision points on GSA formation will be vetted. At the September Forum, attendees will have the opportunity to provide input on an early-stage proposal for Groundwater Sustainability Agency. Forums will have simultaneous Spanish translation.

Groundwater Stakeholder Forum Dates
September 8, 5:30-7:30, Sherwood Hall
November 14, 5:30-7:30, Sherwood Hall
January 26, 5:30-7:30, Sherwood Hall

All meetings are open to the public. Meeting summaries and other materials will be posted online.

Public Workshop
Thursday, September 8
5:30 - 7:30 pm

Sherwood Hall
940 N. Main St., Salinas

Traducción Simultánea Disponible en Español

Management of Salinas Valley groundwater is immediately affected by California's Sustainable Groundwater Management Act (SGMA).

On 9/8, come learn about and share your input on the future of groundwater management in Salinas Valley.

The first requirement of SGMA is the creation of Groundwater Sustainability Agencies (GSAs), which are regulatory bodies responsible for developing and implementing plans to sustainably manage groundwater. A work group comprised of Salinas Valley stakeholders is working to develop recommendations on the structure of this new agency.

This workshop will provide an opportunity for the work group to provide an update on the recommendations for GSA formation, and for people to ask questions and provide input on the recommendations. In addition, a State Water Resources Control Board representative will outline the law's requirements and state backstop.

For more information visit
www.salinasgroundwater.org

Salinas Valley Groundwater

SEASIDE BASIN WATER MASTER TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	September 14, 2016
AGENDA ITEM:	3
AGENDA TITLE:	Discussion of Marina Coast Water District's Plans to Form a Groundwater Sustainability Agency
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:
Rick Riedl suggested that this topic be presented to the TAC for its information and possible direction to the Technical Program Manager.

Background
The Sustainable Groundwater Management Act (SGMA) requires the formation by June 30, 2017 of a new Groundwater Sustainability Agency (GSA) for each medium and high-priority groundwater subbasin as designated by the California Department of Water Resources (DWR). Any local public agency or a combination of local agencies that has water supply, water management, or land use responsibilities within a groundwater subbasin may elect to form a GSA. A local agency or combination of local agencies that elects to form a GSA must hold a public hearing and submit a Notice of Intent to DWR within 30 days of electing to be a GSA. 90 days after posting notice with DWR, the GSA is presumed to be the GSA. In areas of a subbasin not covered by a GSA, the county will be presumed the GSA for the area. Where a county notifies DWR it will not be the GSA for such an area, or a county fails to notify DWR by June 30, 2017 that it will cover such an area, extractions of groundwater must be reported directly to the state.

As reported under Agenda Item 2.D above, Monterey County has been in the process of forming a GSA for the non-adjudicated portions of the Salinas Valley Groundwater Basin for the past several months. Marina Coast Water District (MCWD) has been a participant in those formative meetings, and has recently concluded that it would prefer to be the GSA for that portion of the Salinas Valley Groundwater Basin within which it provides water supply services. Consequently, the MCWD Board of Directors acted on August 15, 2016 to adopt a Resolution setting a Public Hearing on whether to form a GSA for that area, and to set the date of that hearing for September 6, 2016.

MCWD's Proposed Action
As described in the attached Agenda Transmittal from MCWD's August 15, 2016 meeting, and the Public Hearing announcement, MCWD is proposing the following:

1. MCWD proposes to serve as the GSA for that portion of the Salinas Valley Groundwater Basin within which it provides water supply services. MCWD identifies its overall service area as being comprised of two subareas: its Central Marina and its Ord Community service areas.
2. None of the Central Marina subarea of MCWD's service area lies within the adjudicated Seaside Basin. A portion of the Ord Community subarea does lie within the adjudicated Seaside Basin.
3. Specifically, the GSA area MCWD is proposing would include:
    a. That portion of the MCWD's Central Marina water service area within the Seaside Area Subbasin of the Salinas Valley Groundwater Basin.
    b. That portion of MCWD's Ord Community water service area north of the Adjudicated

AGENDA ITEM:	3 (Continued)

Seaside Groundwater Basin within Seaside Area Subbasin, and

c. That portion of MCWD's Ord Community water service area within the Corral de Tierra Subbasin and outside of the Adjudicated Seaside Groundwater Basin. (MCWD's overall service area is shown in the map contained in Attachment 2 to the August 15, 2016 MCWD Agenda Transmittal on this item).

Adjudicated Seaside Basin Boundary Modification Request

As previously discussed at a number of TAC meetings, MPWMD filed with DWR a Basin Boundary Modification Request pursuant to SGMA guidelines in order for the sub-basin boundary of the Seaside Sub-basin within the Salinas Valley Groundwater Basin to be redrawn to show the Court-approved boundary of the Adjudicated Basin. Attached are two of the maps that MPWMD submitted to DWR as part of that request. This Request has been approved by DWR. The next steps by DWR are to (1) Finalize the Basin Boundary Modifications (Late August), (2) Prepare the Interim Bulletin 118 Update (Early September), and (3) Initiate Basin Prioritization Process (Early September).

Discussion

I met with Mr. Keith Van Der Maaten, MCWD's General Manager, on August 25, 2016 to discuss issues of mutual interest and concern regarding SGMA issues, and in particular MCWD's GSA Proposal. Mr. Van Der Maaten offered to attend today's TAC meeting to answer any questions TAC members may have on this matter. I also attended the September 6 MCWD Board meeting at which they unanimously adopted Resolution No. 2016-54 (contained in Attachment B).

As a result of my meeting with Mr. Van Der Maaten, the MCWD Board action approving Resolution No. 2016-54, and my review of the documents provided by MCWD on this matter, it does not appear to me that the MCWD GSA Proposal is cause for any concern to the Watermaster, since MCWD's proposed GSA area does not overlap with the boundary of the Adjudicated Seaside Basin. Potentially having multiple GSAs in the areas that are adjacent to the Adjudication boundary, rather than a single GSA which appears to be the direction Monterey County's Collaborative Work Group is pursuing, may somewhat complicate coordination between the Watermaster and those GSAs on matters of mutual interest and concern. However, the determination of what entity or entities will be the GSA(s) will be made by DWR, not by the Watermaster, and does not appear to pose any significant issues of concern to the Watermaster.

Recommendation

I do not see the need to submit any comments or raise any issues of concern to MCWD regarding their GSA proposal. However, if the TAC does identify such issues I will follow the TAC's direction on communicating them to MCWD.

ATTACHMENTS:	A. MCWD August 15, 2016 Board Meeting Agenda Transmittal B. MCWD September 6, 2016 Public Hearing Resolution C. Maps Included in MPWMD's Basin Boundary Modification Request
RECOMMENDED ACTION:	Provide direction to the Technical Program Manager regarding any input or action the TAC would like the Watermaster to take regarding MCWD's GSA proposal

Attachment A

Marina Coast Water District
Agenda Transmittal

Agenda Item: 9-C | Meeting Date: August 15, 2016

Prepared By: Keith Van Der Maaten | Approved By: Keith Van Der Maaten

Agenda Title: Consider Adoption of Resolution No. 2016-47 to Set a Public Hearing on Whether to Form a Groundwater Sustainability Agency and Authorize the Publication of a Notice of a Public Hearing

Staff Recommendation: The Board of Directors adopt Resolution No. 2016-47 to set a public hearing on September 6, 2016 on whether to form a Groundwater Sustainability Agency and authorize the Publication of a Notice of the Public Hearing.

Background: *2016 Strategic Plan Mission Statement – We provide our customers with high quality water, wastewater collection and conservation services at a reasonable cost, through planning, management and the development of water resources in an environmentally sensitive manner.*

In September 2014, Governor Brown signed historic legislation requiring that California's critical groundwater resources be sustainably managed by local agencies. The Sustainable Groundwater Management Act (SGMA) gives local agencies including cities, counties and water districts or agencies, authority to sustainably manage groundwater over the long-term.

SGMA requires the formation by June 30, 2017 of a new Groundwater Sustainability Agency (GSA) for each medium and high-priority groundwater subbasin as designated by the California Department of Water Resources (DWR). Any local public agency or a combination of local agencies that has water supply, water management, or land use responsibilities within a groundwater subbasin may elect to form a GSA.

A local agency or combination of local agencies that elects to form a GSA must hold a public hearing and submit a Notice of Intent to the California Department of Water Resources (DWR) within 30 days of electing to be a GSA. 90 days after posting notice with DWR, the GSA is presumed to be the GSA. In areas of a subbasin not covered by a GSA, the county will be presumed the GSA for the area. Where a county notifies DWR it will not be the GSA for such an area or a county fails to notify DWR by June 30, 2017 that it will cover such an area, extractions of groundwater must be reported directly to the state.

GSA Responsibilities

The GSA is required to assess the conditions in its local subbasin and to adopt a locally-based Groundwater Sustainability Plan (GSP). GSP's for medium priority subbasins must be completed by January 31, 2022 (by January 31, 2020 for high priority basins) and be designed to achieve basin sustainability within 20 years of adoption. SGMA defines sustainable management as managing and using groundwater in a way that can be sustained over a long period of time. Sustainable yield is defined as the amount of groundwater that can be withdrawn annually without causing "significant and unreasonable impacts" related to any of the following "undesirable results": chronically lowering groundwater levels, causing seawater intrusion,

degrading water quality, causing land subsidence or depleting interconnected surface water including creeks, streams and rivers.

GSA Authority
SGMA empowers GSA's to use a number of new management tools to achieve the sustainability goal. GSA's may conduct investigations, require registration of groundwater wells, determine the sustainable yield of a basin, measure and limit groundwater extractions, assess fees for groundwater management, and enforce the terms of a GSP. GSA's also may request a revision of a groundwater basin boundary, including the establishment of new subbasins.

Salinas Valley Groundwater Basin
In Bulletin 118 (1980), the California Department of Water Resources officially designated the following subbasins of the Salinas Valley Groundwater Basin (SVGB):

Number	Name	Area (acres)	DWR Ranking	GS Plan must be adopted by January 31
3-4	Salinas Valley Groundwater Basin			
3-4-01	180/400 Foot Aquifer (Critically Overdrafted)	84,400	High	**2020**
3-4-02	East Side Aquifer	57,500	High	2022
3-4-04	Forebay Aquifer	94,100	Medium	2022
3-4-05	Upper Valley Aquifer	98,200	Medium	2022
3-4-06	Paso Robles (Critically Overdrafted)	597,000	High	**2020**
3-4-08	Seaside	25,900	Medium	2022
3-4-09	Langley	15,400	Medium	2022
3-4-10	Corral De Tierra	15,400	Medium	2022

The SVGB officially consists of eight subbasins, including the Paso Robles Subbasin a majority of which is located within San Luis Obispo County. Attachment 1 is a MCWRA map showing the above DWR-designated subbasins.

The District's Central Marina and Ord Community water service areas overly portions of the Seaside Area, Corral de Tierra, and 180/400 Foot Aquifer Subbasins of the Salinas Valley Groundwater Basin. The District's Ord Community water service area is within a portion of the Adjudicated Seaside Groundwater Basin and is also within a portion of the statutory boundaries of the Monterey Peninsula Water Management District (MPWMD). Water Code Section 10723(c)(2) designates the MPWMD as the exclusive groundwater management area within MPWMD's statutory boundaries unless MPWMD elects to opt out of being the exclusive groundwater management agency for that area. By MPWMD Resolution No. 2016-01, the MPWMD Board of Directors elected to opt out of being the exclusive groundwater management agency for that portion of MPWMD located north of the Adjudicated Seaside Groundwater Basin.

Discussion/Analysis: SGMA provides flexibility in the governance of subbasins. The following options exist for development and implementation of a GSA/GSP:

- One GSA and one GSP covering the entire basin and subbasins (centralized)
- Multiple GSAs and one GSP covering the entire basin and subbasins (distributed)
- Multiple GSAs, multiple GSPs covering the entire basin or subbasins pursuant to a single coordination agreement that covers the entire basin (distributed)

Under SGMA, each subbasin is required to have a groundwater sustainability agency or agencies and a groundwater sustainability plan or coordinated GSP. There is no legal requirement in SGMA that mandates that the entire Salinas Valley Groundwater Basin have only one GSA and only one GSP. MCWD has been participating in a county-wide group over the last several months to discuss the option of implementing a single, centralized, GSA for the entire Salinas Valley Groundwater Basin. For numerous reasons, staff is proposing to move forward with the option that the District form the GSA for its service area instead of the proposed county-wide alternative of a single GSA for the entire Salinas Valley Groundwater Basin (SVGB). Specifically, the GSA area for MCWD is proposed to include (1) that portion of the District's Central Marina water service area within the Seaside Area Subbasin of the Salinas Valley Groundwater Basin, (2) that portion of the District's Ord Community water service area north of the Adjudicated Seaside Groundwater Basin within Seaside Area Subbasin, and (3) that portion of the District's Ord Community water service area within the Corral de Tierra Subbasin and outside of the Adjudicated Seaside Groundwater Basin (Attachment 2). As we move ahead in the process, it should be noted that the California Department of Water Resources (DWR) has proposed to merge the three areas described above into a new subbasin to be known as the "Monterey Subbasin", but that merger would not take effect (if at all) until at least the end of September 2016. So unless and until the proposed merger becomes effective, the District will need to proceed as though the Seaside Area Subbasin and the Corral de Tierra Subbasin will continue to be two separate subbasins for which separate GSAs would need to be formed, but to also tailor the GSA formation process to provide the District's Board of Directors with the option of forming one GSA for all three areas.

The specific reasons why the District is proposing to move forward with the option that the District form the GSA for its service area instead of the proposed county-wide alternative of a single GSA for the entire SVGB are explained as follows:

1. MCWD has been effectively managing its groundwater supply for many years, has moved wells as necessary to manage saltwater intrusion, and has established exceptional water efficiency and created highly successful conservation programs with customers. In addition, water loss programs and the development of a fresh water barrier between MCWD pumping and the ocean proves a strong record of environmental stewardship. MCWD was an early proponent and adopter of recycled and desalinated water to augment existing supplies and continually monitors and manages water quality through our own lab.

2. The District has been locally managing its groundwater since 1960 and is directly responsive to and transparent with our ratepayers. Enhancing local management is best achieved by maintaining this direct relationship with our customers and avoids added layers of government and bureaucracy that could diminish public participation.

3. The SVGB is a complex system of 8 subbasins, two of which are critically overdrafted. Since the MCWD proposed GSA area is not among the critically overdrafted subbasins, the District has until January 31, 2022 to develop its GSP. Alternatively, a single GSA for the entire SVGB would have to submit a GSP by January 31, 2020 or face the possibility of adverse actions by the State Water Resources Control Board (SWRCB) which could impose its own GSP for the critically overdrafted subbasins.

4. The District is a regional player. Through active practice of measuring and setting goals under the Urban Water Management Plan (UWMP), conservation programs, facility master plans, Regional Urban Water Augmentation Plan (RUWAP), and funding agreements, MCWD is a proven leader in the region. Implementation of SGMA will require that the GSP be consistent and complimentary with these efforts and that comprehensively, all of the efforts work to achieve groundwater sustainability, optimize water efficiency, minimize water loss, and maximize reliability while minimizing the risk. All while committed to our solid track record of keeping costs as low as possible to our customers.

5. SGMA provides MAXIMUM LOCAL CONTROL to the GSAs which includes the ability to assess fees, provide enforcement to implement the technical and financial measures to support groundwater sustainability. Customer feedback is critically important to MCWD and according to a recent survey among existing ratepayers, their strong desire is that MCWD work to identify solutions for future water supply while maintaining low rates. The best option to satisfy the desires of our ratepayers is to form our own GSA.

6. MCWD is principally a water service provider for municipal uses and one whose customers are socio-economically and culturally diverse. Establishing our own GSA is the only sure fire way to ensure their voices are heard through this process and not overshadowed by other interests.

For these reasons, staff is therefore recommending that the Board of Directors adopt Resolution No. 2016-47 to set a public hearing for September 6, 2016 on whether to form a Groundwater Sustainability Agency and authorize the Publication of a Notice of the Public Hearing.

Environmental Review Compliance: None.

Financial Impact: _____Yes __X__No Funding Source/Recap: None

Other Considerations: Continue to form a single GSA with Monterey County.

Material Included for Information/Consideration: Resolution No. 2016-47; Attachment 1- MCWRA Map of Salinas Valley Groundwater Subbasins; and, Attachment 2- Map showing proposed MCWD GSA area.

Action Required: ___X____Resolution _____Motion _____Review
(Roll call vote is required.)

Board Action

Motion By_____ Seconded By_____ No Action Taken_____

Ayes_____ Abstained_____

Noes_____ Absent_____

August 15, 2016

Resolution No. 2016-47
Resolution of the Board of Directors
Marina Coast Water District
Setting a Public Hearing on Whether to Form a Groundwater Sustainability Agency
and to Authorize Publication of the Notice

RESOLVED by the Board of Directors ("Directors") of the Marina Coast Water District ("District"), at a regular meeting duly called and held on August 15, 2016 at 211 Hillcrest Avenue, Marina, California as follows:

Recitals

A. The Sustainable Groundwater Management Act of 2014, Water Code Sections 10720 – 10736.6 ("SGMA") was signed into law on September 16, 2014; and,

B. SGMA requires that each California groundwater subbasin be managed by a single Groundwater Sustainability Agency ("GSA") or by a combination of GSAs and that such management be implemented pursuant to an approved Groundwater Sustainability Plan, or multiple coordinated GSP's, as the case may be; and,

C. The legislative intent of the Sustainable Groundwater Management Act is to provide for sustainable management of groundwater subbasins, to enhance local management of groundwater, to establish minimum standards for sustainable groundwater management, and to provide local groundwater agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater; and,

D. Water Code Section 10723(a) authorizes any local agency with a service area overlying a groundwater subbasin or portion thereof to establish itself as the GSA for its service area; and,

E. Water Code Section 10721(j) defines a GSA as one or more local agencies that implement the provisions of SGMA; and,

F. The District's Central Marina and Ord Community water service areas overly portions of the Seaside Area, Corral de Tierra, and 180/400 Foot Aquifer Subbasins of the Salinas Valley Groundwater Basin; and,

G. The District's Ord Community water service area is within a portion of the Adjudicated Seaside Groundwater Basin and is also within a portion of the statutory boundaries of the Monterey Peninsula Water Management District (MPWMD); and,

H. Water Code Section 10723(c)(2) designates the MPWMD as the exclusive groundwater management area within MPWMD's statutory boundaries unless MPWMD elects to opt out of being the exclusive groundwater management agency for that area; and,

I. By MPWMD Resolution No. 2016-01, the MPWMD Board of Directors elected to opt out of being the exclusive groundwater management agency for that portion of MPWMD located north of the Adjudicated Seaside Groundwater Basin; and,

J. District staff is proposing that the District form the GSA for (1) that portion of the District's Central Marina water service area within the Seaside Area Subbasin of the Salinas Valley Groundwater Basin, (2) that portion of the District's Ord Community water service area north of the Adjudicated Seaside Groundwater Basin within Seaside Area Subbasin, and (3) that portion of the District's Ord Community water service area within the Corral de Tierra Subbasin and outside of the Adjudicated Seaside Groundwater Basin; and,

K. The California Department of Water Resources (DWR) has proposed to merge the three areas described in Recital J above into a new subbasin to be known as the "Monterey Subbasin" but that merger would not take effect (if at all) until at least the end of September 2016, so unless and until the proposed merger becomes effective, the District will need to proceed as though the Seaside Area Subbasin and the Corral de Tierra Subbasin will continue to be two separate subbasins for which separate GSAs would need to be formed, but to also tailor the GSA formation process to provide the District's Board of Directors with the option of forming one GSA for all three areas; and,

L. Prior to adopting a resolution of intent to establish the District as two separate GSAs or one GSA, Water Code Section 10723 requires a local agency to hold a public hearing, after publication of notice pursuant to Government Code Section 6066, on whether or not to adopt a resolution to establish a GSA.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of the Marina Coast Water District does hereby adopt Resolution No. 2016-47 setting the required public hearing for Tuesday, September 6, 2016, at 7:00 PM at 211 Hillcrest Avenue, Marina, CA, and authorizing the Secretary to the Board to publish the notice in accordance with Government Code Section 6066.

PASSED AND ADOPTED on August 15, 2016, by the Board of Directors of the Marina Coast Water District by the following roll call vote:

Ayes: Directors_____

Noes: Directors_____

Absent: Directors_____

Abstained: Directors_____

_____
Howard Gustafson, President

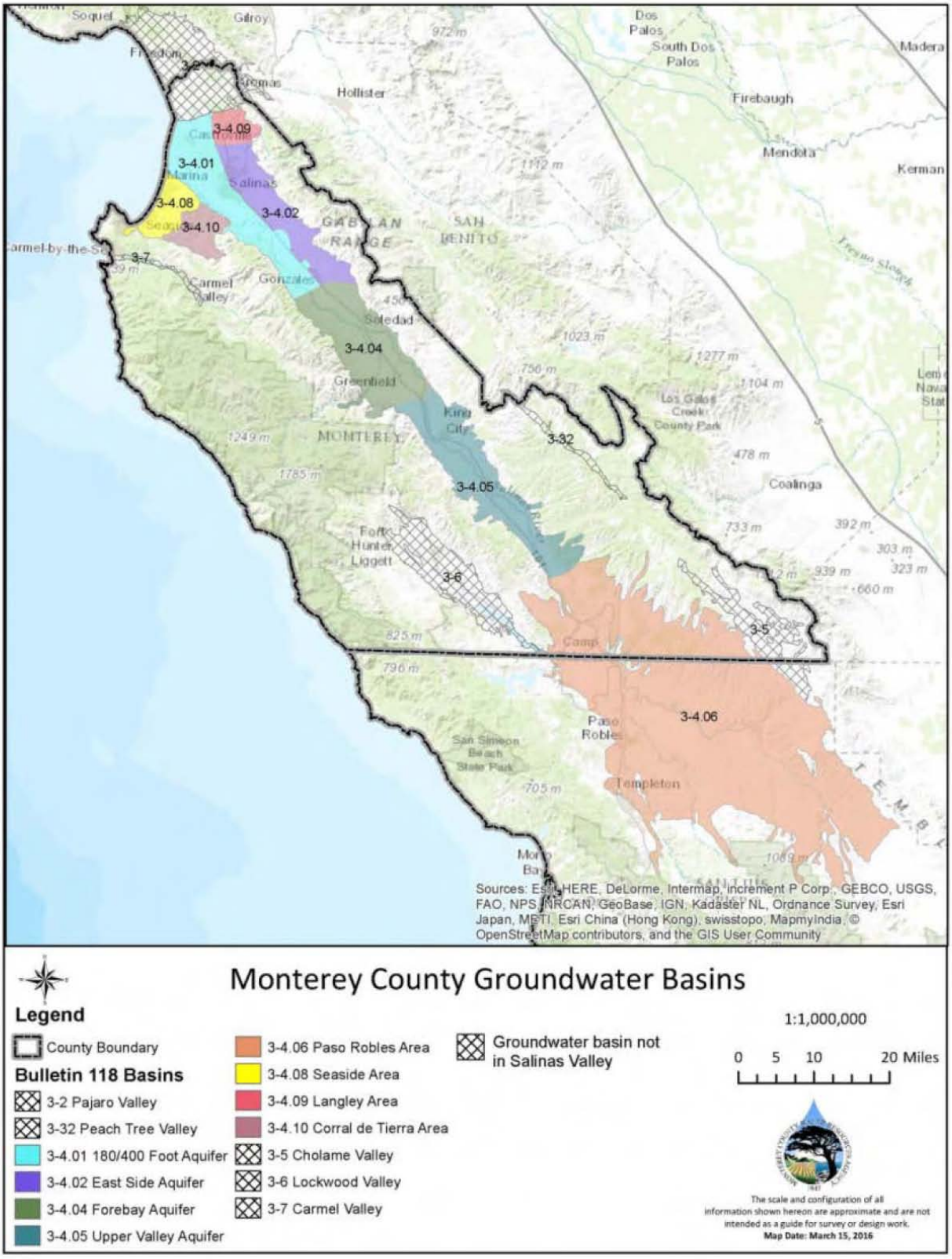
ATTEST:

_____
Keith Van Der Maaten, Secretary

CERTIFICATE OF SECRETARY

The undersigned Secretary of the Board of the Marina Coast Water District hereby certifies that the foregoing is a full, true and correct copy of Resolution No. 2016-47 adopted August 15, 2016.

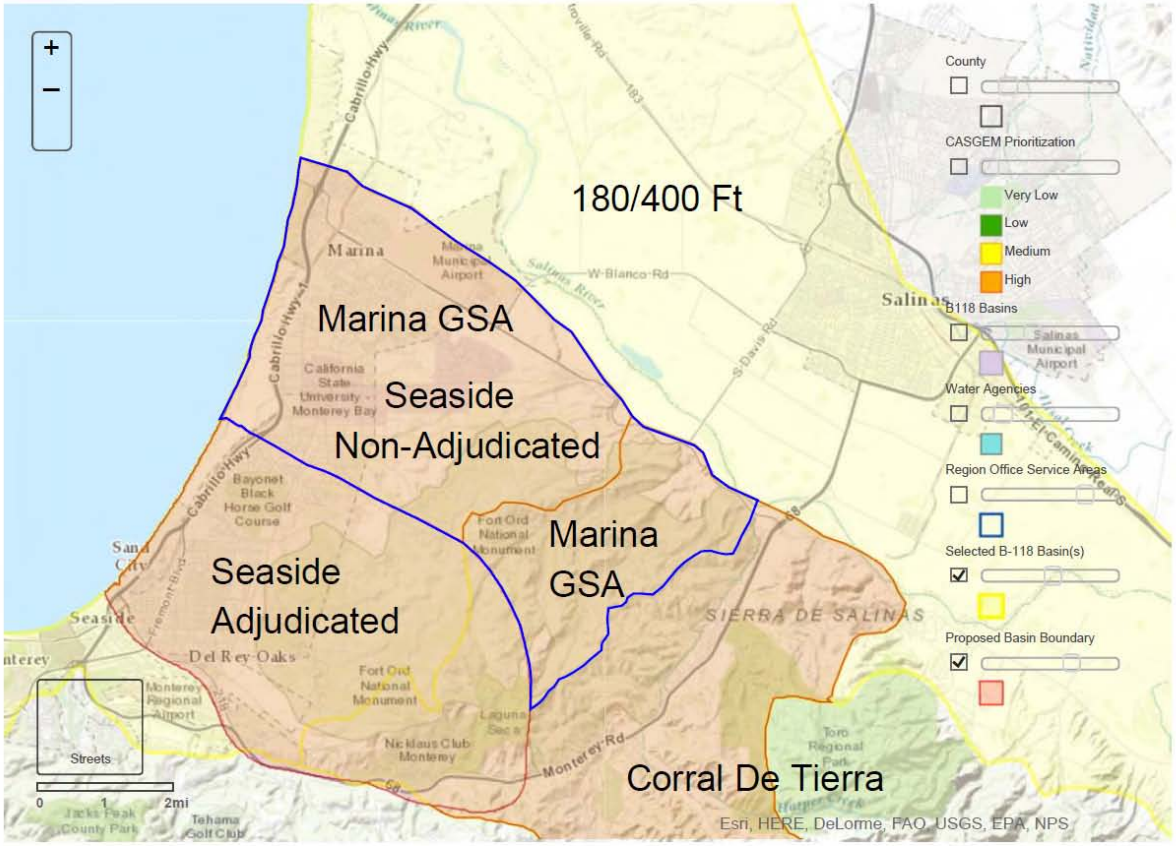
_____
Keith Van Der Maaten, Secretary


Monterey County Groundwater Basins
Legend
County Boundary
Bulletin 118 Basins
3-2 Pajaro Valley
3-32 Peach Tree Valley
3-4.01 180/400 Foot Aquifer
3-4.02 East Side Aquifer
3-4.04 Forebay Aquifer
3-4.05 Upper Valley Aquifer
3-4.06 Paso Robles Area
3-4.08 Seaside Area
3-4.09 Langley Area
3-4.10 Corral de Tierra Area
3-5 Cholame Valley
3-6 Lockwood Valley
3-7 Carmel Valley
Groundwater basin not in Salinas Valley
1:1,000,000
0 5 10 20 Miles
The scale and configuration of all information shown hereon are approximate and are not intended as a guide for survey or design work.
Map Date: March 15, 2016
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Soquel
Gilroy
Hollister
Dos Palos
South Dos Palos
Firebaugh
Mendota
Madera
Kerman
Marina
Salinas
Seaside
Carmel-by-the-Sea
Carmel Valley
Gonzales
Soledad
Greenfield
King City
Los Gatos Creek County Park
Coalinga
Fort Hunter Liggett
Camp
Paso Robles
Templeton
San Simeon Beach State Park
3-4.01
3-4.02
3-4.04
3-4.05
3-4.06
3-4.08
3-4.09
3-4.10
3-2
3-32
3-5
3-6
3-7

Attachment 2

Department of Water Resources
Basin Boundary Modification Request System

Statewide Map Viewer
Basin Modification Requests



PROPOSED GROUNDWATER
SUSTAINABILITY AGENCY BOUNDARIES

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Last Modified: 10/08/2015

Attachment B

MARINA COAST WATER DISTRICT

11 RESERVATION ROAD, MARINA, CA 93933-2099
Home Page: www.mcwd.org
TEL: (831) 384-6131 FAX: (831) 883-5995

Agenda
Regular Board Meeting, Board of Directors
Marina Coast Water District

Marina Council Chambers
211 Hillcrest Avenue, Marina, California
Tuesday, September 6, 2016, 6:30 p.m. PST
(Please note the date)

This meeting has been noticed according to the Brown Act rules. The Board of Directors meet regularly on the first and third Monday of each month. The meetings normally begin at 6:30 p.m. and are held at the City of Marina Council Chambers at 211 Hillcrest Avenue, Marina, California.

Our Mission: *We provide our customers with high quality water, wastewater collection and conservation services at a reasonable cost, through planning, management and the development of water resources in an environmentally sensitive manner.*

1. Call to Order

2. Roll Call

3. Public Comment on Closed Session Items *Anyone wishing to address the Board on matters appearing on Closed Session may do so at this time. Please limit your comment to four minutes. The public may comment on any other items listed on the agenda at the time they are considered by the Board.*

4. Closed Session

A. Pursuant to Government Code 54956.9
Conference with Legal Counsel – Existing Litigation

1) Ag Land Trust v. Marina Coast Water District, Monterey County Superior Court Case No. M105019; Sixth Appellate District Court of Appeals Case Nos. H038550 and H039559

2) In the Matter of the Application of California-American Water Company (U210W) for Approval of the Monterey Peninsula Water Supply Project and Authorization to Recover All Present and Future Costs in Rates, California Public Utilities Commission No. A.12-04-019 & A.13-05-017 Settlement Agreement

This agenda is subject to revision and may be amended prior to the scheduled meeting. Pursuant to Government Code section 54954.2(a)(1), the agenda for each meeting of the Board shall be posted at the City of Marina Council Chambers. The agenda shall also be posted at the following locations but those locations are not official agenda posting locations for purposes of section 54954.2(a)(1): District offices at 11 Reservation Road, Seaside City Hall, the City of Marina Library, and the City of Seaside Library. A complete Board packet containing all enclosures and staff materials will be available for public review on Wednesday, August 31, 2016. Copies will also be available at the Board meeting. Information about items on this agenda or persons requesting disability related modifications and/or accommodations should contact the Board Clerk 48 hours prior to the meeting at: 831-883-5910.

3) Marina Coast Water District v. California Public Utilities Commission, California Supreme Court Case No. S230728, Writ of Review

4) California-American Water Company vs Marina Coast Water District; Monterey County Water Resources Agency; and Does 1 through 10, San Francisco Superior Court Case No. CGC-13-528312 (Complaint for Declaratory Relief); First Appellate District Court of Appeals Case No. A145604

5) Marina Coast Water District vs. California-American Water Company, Monterey County Water Resources Agency, and Does 1 through 50, San Francisco Superior Court Case No. CGC-15-547125 (Complaint for Breach of Warranties, etc.)

6) Marina Coast Water District v. California Coastal Commission (California-American Water Company, Real Party in Interest), Santa Cruz County Superior Court Case No. CV180839 (Petition for Writ of Mandate). Sixth District Court of Appeal Case No. H042742

7) Marina Coast Water District v. California State Lands Commission (California-American Water Company, Real Party in Interest), Santa Cruz County Superior Court Case No. CV180895 (Petition for Writ of Mandate)

B. Pursuant to Government Code 54956.8
Conference with Real Property Negotiator
Property: Sewer Infrastructure
Negotiating parties: Howard Gustafson, Thomas Moore
Under Negotiation: Price and Terms

7:00 p.m. Reconvene Open Session

5. Reportable Actions Taken During Closed Session *The Board will announce any reportable action taken during closed session and the vote or abstention on that action of every director present, and may take additional action in open session as appropriate. Any closed session items not completed may be continued to after the end of all open session items.*

6. Pledge of Allegiance

7. Oral Communications *Anyone wishing to address the Board on matters not appearing on the Agenda may do so at this time. Please limit your comment to four minutes. The public may comment on any other items listed on the agenda at the time they are considered by the Board.*

8. Public Hearing

A. Public Hearing on Whether to Form One or Two Groundwater Sustainability Agencies

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9. Presentation

A. Consider Adoption of Resolution No. 2016-53 in Recognition of Daniel Jackson, Systems Operator II, and Awarding a Plaque and Gift Certificate for 5 Years of Service to the Marina Coast Water District

10. Consent Calendar *Board approval can be taken with a single motion and vote. A Board member or member of the public may request that any item be pulled from the Consent Calendar for separate consideration at this meeting or a subsequent meeting. The public may address the Board on any Consent Calendar item. Please limit your comment to four minutes.*

A. Approve the Draft Minutes of the Regular Board Meeting of August 15, 2016

11. Action Items *The Board will review and discuss agenda items and take action or direct staff to return to the Board for action at a following meeting. The public may address the Board on these Items as each item is reviewed by the Board. Please limit your comment to four minutes.*

A. Consider Adoption of Resolution No. 2016-54 to Elect to Become the Exclusive Groundwater Sustainable Agency within Portions of Two Subbasins and to Direct District Staff to Submit the Required Notifications to the California Department of Water Resources

Action: The Board will consider electing to become the *Groundwater Sustainable Agency within Portions of Two Subbasins and directing District Staff to submit the required Notifications to the California Department of Water Resources.*

B. Consider Providing Direction to the Water Conservation Commission Regarding Goals/Objectives

Action: The Board will consider providing direction to the Water Conservation Commission regarding their roles and duties.

C. Consider Adoption of Resolution No. 2016-55 to Award a Construction Contract to Monterey Peninsula Engineering and Amend the FY 2016-2017 Capital Improvement Budget

Action: The Board will consider approving the award of the Lightfighter Water Main Pipeline Project to Monterey Peninsula Engineering and amend the FY 2016-2017 Capital Improvement Budget.

D. Consider Adoption of Resolution No. 2016-49 to Approve an Update to the District Procurement Policy and Eliminate the District Vehicle Replacement Policy

Action: The Board of Directors will consider approving an update to the District's Procurement Policy and eliminate the District Vehicle Replacement Policy.

E. Consider Adoption of Resolution No. 2016-50 to Approve the List of District Blanket and Sole Source Vendors Above $45,000 for FY 2016-2017

Action: The Board of Directors will consider approving the list of District blanket and sole source vendors above $45,000 for FY 2016-2017.

12. Informational Items *Informational items are normally provided in the form of a written report or verbal update and may not require Board action. The public may address the Board on Informational Items as they are considered by the Board. Please limit your comments to four minutes.*

A. General Manager's Report

B. Counsel's Report

C. Committee and Board Liaison Reports

1. Water Conservation Commission
2. Joint City-District Committee
3. Executive Committee
4. Community Outreach Committee
5. Budget and Personnel Committee
6. MRWPCA Board Member Liaison
7. LAFCO Liaison
8. FORA
9. WWOC Report
10. JPIA Liaison
11. Special Districts Association

13. Board Member Requests for Future Agenda Items

14. Director's Comments *Director reports on meetings with other agencies, organizations and individuals on behalf of the District and on official District matters.*

15. Adjournment *Set or Announce Next Meeting(s), date(s), time(s), and location(s):*

Regular Meeting: Monday, September 19, 2016, 6:30 p.m.,
Marina Council Chambers, 211 Hillcrest Avenue, Marina

September 6, 2016

Resolution No. 2016-54
Resolution of the Board of Directors
Marina Coast Water District

Election to Become the Exclusive Groundwater Sustainability Agency
Within Portions of Two Subbasins

RESOLVED by the Board of Directors ("Directors") of the Marina Coast Water District ("District"), at its regular meeting duly called and held on September 6, 2016, at 211 Hillcrest Avenue, Marina, California, as follows:

Recitals

A. The Sustainable Groundwater Management Act of 2014, Water Code Sections 10720 – 10736.6 ("SGMA") was signed into law on September 16, 2014; and,

B. SGMA gives local agencies, such as the District, additional authorities and powers to manage groundwater in a sustainable manner and allows for limited state intervention when those local agencies fail to comply with SGMA's requirements; and,

C. SGMA requires that each California Department of Water Resource ("DWR")-designated groundwater subbasin be managed by a single Groundwater Sustainability Agency ("GSA") or by a combination of GSAs and that such management be implemented pursuant to an approved Groundwater Sustainability Plan ("GS Plan"), or multiple coordinated GS Plans, as the case may be; and,

D. Water Code Section 10723(a) authorizes any local agency with a service area overlying a groundwater subbasin or portion thereof to establish itself as the GSA for its service area; and,

E. Water Code Section 10721(j) defines a GSA as one or more local agencies that implement the provisions of SGMA; and,

F. The District's Central Marina and Ord Community water service areas overly portions of the Seaside Area, Corral de Tierra, and 180/400 Foot Aquifer Subbasins of the Salinas Valley Groundwater Basin; and,

G. The District's Ord Community water service area is within a portion of the Adjudicated Seaside Groundwater Basin and is also within a portion of the statutory boundaries of the Monterey Peninsula Water Management District (MPWMD); and,

H. Water Code Section 10723(c)(2) designates the MPWMD as the exclusive groundwater management area within MPWMD's statutory boundaries unless MPWMD elects to opt out of being the exclusive groundwater management agency for that area; and,

I. By MPWMD Resolution No. 2016-01, the MPWMD Board of Directors elected to opt out of being the exclusive groundwater management agency for that portion of MPWMD situated north of the Adjudicated Seaside Groundwater Basin; and,

J. District staff is proposing that the District become the GSA for (1) that portion of the District's Central Marina water service area within the Seaside Area Subbasin of the Salinas Valley Groundwater Basin and (2) that portion of the District's Ord Community water service area north of the Adjudicated Seaside Groundwater Basin within Seaside Area Subbasin, which shall collectively be referred to as the "Marina Area of the Seaside Area Subbasin" and as shown on the map attached hereto as Exhibit "A"; and,

K. District staff is separately proposing that the District become the GSA for that portion of the District's Ord Community water service area within the Corral de Tierra Subbasin, which shall be referred to as the "Ord Area of the Corral de Tierra Subbasin" as shown on the map attached hereto as Exhibit "B"; and,

L. Establishing the District as the GSA for the Marina Area of the Seaside Area Subbasin and separately for the Ord Area of the Corral de Tierra Subbasin will enable the District to prepare and implement a Groundwater Sustainability Plan for those respective areas; and,

M. The District is committed to sustainable management of its groundwater resources; and,

N. Adoption of this Resolution does not constitute a "project" under California Environmental Quality Act Guidelines Section 15378(b)(5), including organizational and administrative activities of government, because there would be no direct or indirect physical change in the environment; and,

O. Prior to adopting a resolution of intent to establish the District as the GSA for the respective areas, Water Code Section 10723 requires a local agency to hold a public hearing, after publication of notice pursuant to California Government Code Section 6066, on whether or not to adopt a resolution to establish a GSA; and,

P. Pursuant to Government Code Section 6066, notices of a public hearing on whether or not to adopt a resolution to establish one or two GSAs were published on August 19, 2016 and August 26, 2016; and,

Q. On September 6, 2016, the District held a public hearing regarding adoption of a resolution to establish the District as the GSA for for the Marina Area of the Seaside Area Subbasin and separately for the Ord Area of the Corral de Tierra Subbasin as shown on the Exhibit "A" and Exhibit "B" maps, which maps exclude that portion of MCWD's Ord Community service area within the Adjudicated Seaside Groundwater Basin and exclude that portion of its service areas within the 180/400 Foot Aquifer Subbasin; and,

R. It would be in the best interest of the District for it to become the exclusive GSA for that portion of its service areas shown respectively on the Exhibit "A" and Exhibit "B" maps; and,

S. DWR has proposed that the Marina Area of the Seaside Area Subbasin and that portion of the Corral de Tierra Subbasin outside of the Adjudicated Seaside Groundwater Basin be merged into a new subbasin named the "Monterey Subbasin", but that basin boundary modification is not yet finalized so the District's service areas within the Seaside Area Subbasin and the Corral de Tierra Subbasin must be treated separately; and,

T. The District has opposed the proposed merger because it is contrary to the basin boundary modification requested by MPWMD, which the District supported, but the District desires to avoid any delays in processing the District's GSA formation notifications should the new combined Monterey Subbasin go into effect.

NOW, THEREFORE, BE IT RESOLVED AS FOLLOWS:

1. All the recitals in this Resolution are true and correct and the Board of Directors so finds, determines, and represents.

2. The District hereby elects to become the exclusive GSA (a) for the Marina Area of the Seaside Area Subbasin and (b) separately for the Ord Area of the Corral de Tierra Subbasin as shown respectively on the attached Exhibit "A" and Exhibit "B" maps, which are incorporated herein by reference.

3. District staff is hereby directed and authorized to provide separate notices of this election to become the exclusive GSA (a) for the Marina Area of the Seaside Area Subbasin and (b) for the Ord Area of the Corral de Tierra Subbasin to DWR in the manner required by law.

4. Should the new Monterey Subbasin go into effect, then the Board of Directors requests DWR to automatically convert the District's two separate GSA formation notifications into a single notification to form an exclusive GSA for one combined area in order to avoid delay in processing the District's GSA election.

PASSED AND ADOPTED on September 6, 2016, by the Board of Directors of the Marina Coast Water District by the following roll call vote:

Ayes: Directors_____

Noes: Directors_____

Absent: Directors_____

Abstained: Directors_____

_____
Howard Gustafson, President

ATTEST:

_____
Keith Van Der Maaten, Secretary

CERTIFICATE OF SECRETARY

The undersigned Secretary of the Board of the Marina Coast Water District hereby certifies that the foregoing is a full, true and correct copy of Resolution No. 2016-54 adopted September 6, 2016.

_____
Keith Van Der Maaten, Secretary

Attachment C

Map 1 of MPWMD's Boundary Modification Request

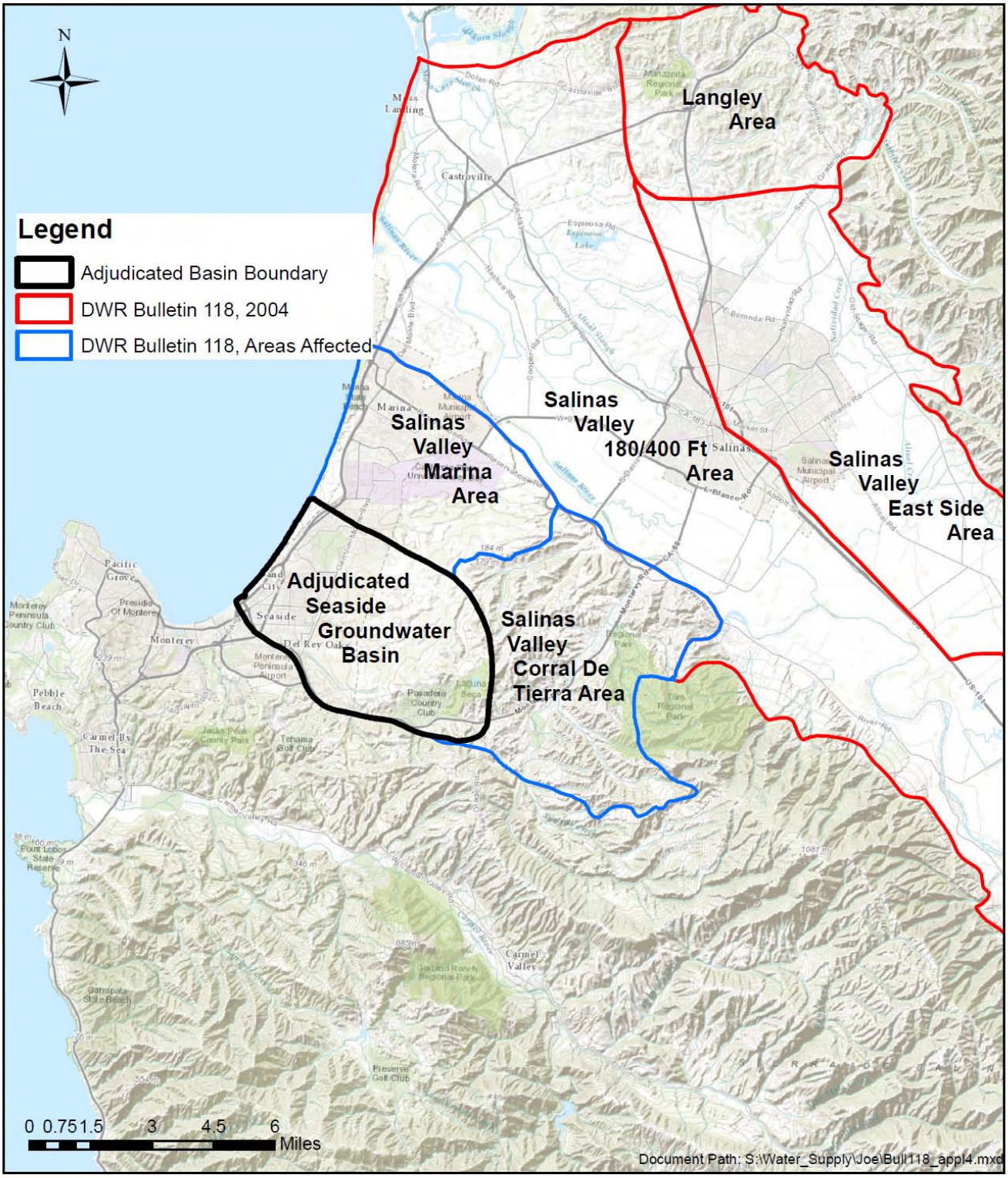

Figure 1: Regional Map showing location of Adjudicated Seaside Groundwater Basin & Affected DWR Bulletin 118 Basin Boundaries

Monterey Peninsula Water Management District

Map 2 of MPWMD's Boundary Modification Request

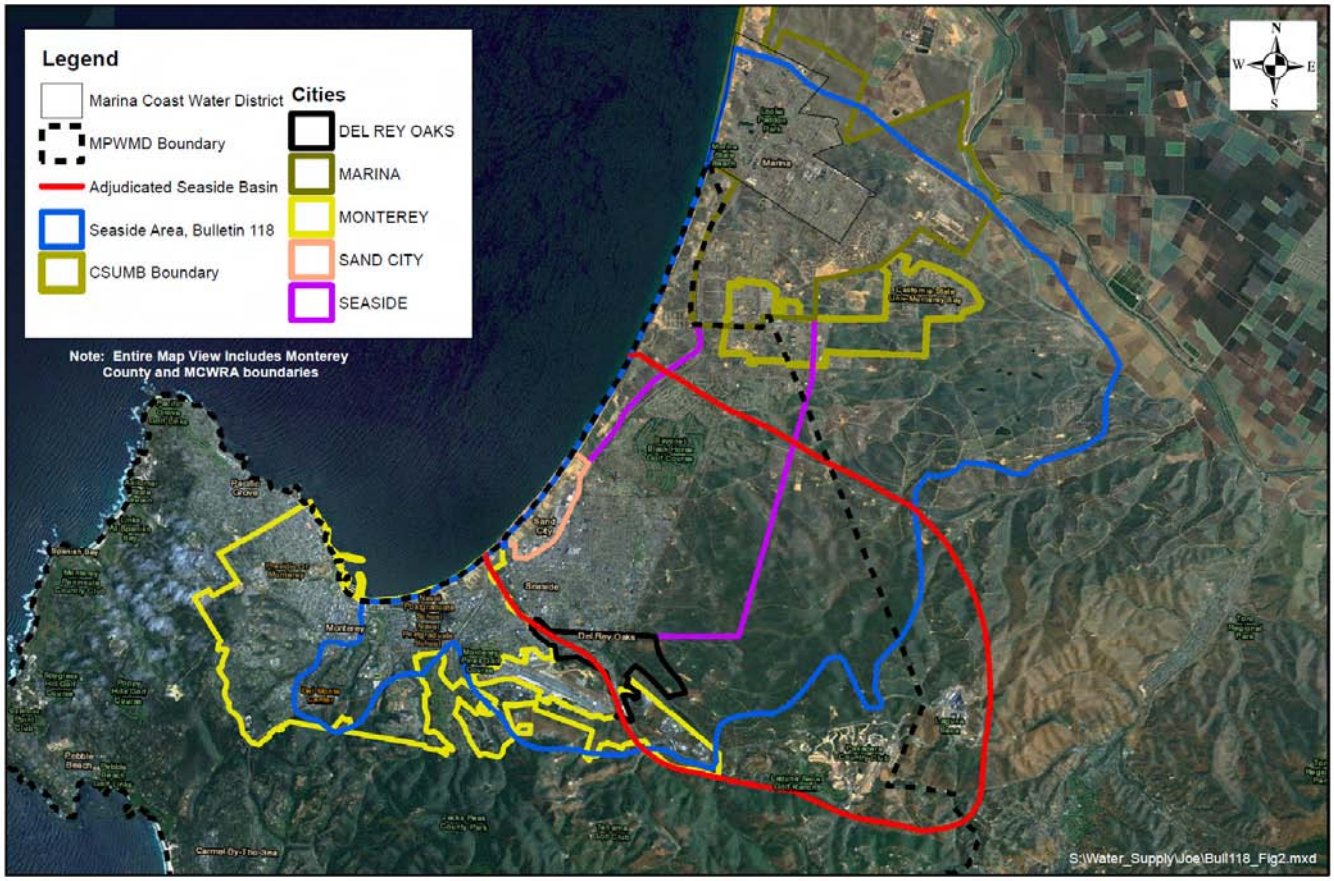

Figure 2: Proposed Modified Basin Boundary with Local Agencies

1.5 0.75 0 1.5 Miles

Monterey Peninsula Water Management District

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE
**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 14, 2016
AGENDA ITEM:	4
AGENDA TITLE:	Revise Sampling Frequency for Sand City Public Works Well Sand City Public Works Well
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

In 2012 a concern was identified through monitoring data that there was something different about the City of Sand City's Public Works Well that was causing it to exhibit different water quality characteristics than other wells in the same general vicinity within the Seaside Basin. As a result the Watermaster had MPWMD perform an analysis to try to determine the cause of these differences. As a result of this the Watermaster decided to increase the water quality sampling frequency of this well from annually to quarterly.

Several years of quarterly data on this well have now been acquired. The well does not appear to be showing any indications of seawater intrusion, and its water quality is generally staying within a reasonable range of variation. This is demonstrated by the discussion of this well in the attachment to this Agenda Transmittal.

For this reason I recommend that effective in 2017 we revert back to annual water quality sampling of this well, just as is done for some of the other wells in the Watermaster's monitoring well network. If this recommendation is supported by the TAC, it will be included in the 2016 Annual Report. The revision in monitoring frequency will also be reflected in the scope of work and cost for monitoring in MPWMD's RFS No. 2017-01, and in the 2017 M&MP Work Plan and Operations Budget.

ATTACHMENTS:	Discussion Paper on Sand City Monitoring Well
RECOMMENDED ACTION:	Approve Technical Program Managers recommendation to revert to annual water quality sampling of the Sand City Public Works Well

DISCUSSION PAPER ON CITY OF SAND CITY PUBLIC WORKS WELL

The 2012 Annual Report introduced the issue of anomalies in water quality data for the Sand City Public Works Well and contains this section discussing it:
Management and Monitoring Program Work Plan The Management and Monitoring Program Compiling historical and current water quality data in the coastal area to provide more in-depth evaluation of conditions in the shallow Dune Sand/Aromas Sand aquifer in the vicinity of the Sand City Public Works well, where unique water quality conditions and variability have recently been observed as discussed at TAC meetings. This work is under Task I.4.b.

The 2013 Annual Report continued discussion of this issue and contains this section discussing it:
Investigation into Water Quality Anomalies at the City of Sand City Public Works Well Under Task I.4.b in the 2013 M&MP, MPWMD was to undertake a "Focused Hydrogeologic Evaluation" of the Sand City Public Works well. This work was envisioned as consisting of compiling historical and current water quality data in the coastal area to provide more in-depth evaluation of conditions in the shallow Dune Sand/Aromas Sand aquifer in the vicinity of the Sand City Public Works well, where unique water quality conditions and variability have recently been observed. The results of this evaluation were to be summarized in a brief Technical Memorandum with conclusions and recommendations.

MPWMD started this work in 2013 but after an exhaustive search, including inquiries to California American Water who at one time had wells in this area (these have all since been abandoned), was only able to locate a very small amount of historical water quality data that could be used to perform the evaluation. Therefore, it was not possible to definitively determine the cause of the water quality anomalies. However, the numerous reports that are cited in the Technical Memorandum indicate that other wells perforated in this shallow dune formation had experienced unusual variations in water quality for many years dating back into the 1960s, presumably due to seawater intrusion into this shallow formation.

The Watermaster will continue performing sampling of this well at the increased (quarterly) frequency that was initiated in 2012 in order to identify any water quality trends at this well. The Technical Memorandum summarizing the work that MPWMD performed is contained in Attachment 14. (Note: Attachment 14 is attached to this Agenda Transmittal).

The 2014 Annual Report continued discussion on this topic and contains this section discussing it:
Investigation into Water Quality Anomalies at the City of Sand City Public Works Well Under Task I.4.b in the 2013 M&MP, MPWMD was to undertake a "Focused Hydrogeologic Evaluation" of the Sand City Public Works well. This work was envisioned as consisting of compiling historical and current water quality data in the coastal area to provide more in-depth evaluation of conditions in the shallow Dune Sand/Aromas Sand aquifer in the vicinity of the Sand City Public Works well, where unique water quality conditions and variability have recently been observed. However, after an exhaustive search, including inquiries to California American Water who at one time had wells in this area (these have all since been abandoned), MPWMD was only able to locate a very small amount of historical water quality data that could be used to perform the evaluation. Therefore, it was not possible to definitively determine the cause of the water quality anomalies. The Technical Memorandum summarizing the work that MPWMD performed was contained in Attachment 14 of the 2013 Annual Report. The Watermaster will continue performing sampling of this well at the increased (quarterly) frequency that was initiated in 2012 in order to identify any water quality trends at this well.

The 2015 Annual Report continued discussion on this topic and contains this section discussing it:
No modifications to the quarterly data collection frequency from the enhanced network of monitoring wells were made during WY 2015 and none are being proposed for WY 2016.

The 2015 SIAR contains these statements on this topic:

The Sand City's Public Works Corp Yard production well Piper diagram shows that its cations, namely calcium, sodium, and potassium, vary while the anions remain more stable (Appendix A: Figure A-23). Initially, it was thought this well's chemistry was evolving over time, but now after multiple years of monitoring, it appears that the relative percentage of cations varies between fixed points and is not evolving in one direction only. The source of this variance is not seawater because it does not follow the pattern depicted on Figure 4 and Figure 5. Note: Figure A-23 is shown below.

The York School production well, in the Laguna Seca subarea, and Sand City's Public Works Corp Yard production well, in the Southern Coastal subarea both have Stiff diagrams different from most other wells' water quality (Figure 18). Although the shapes are different, they do not display the large chloride spike associated with seawater intrusion as shown on Figure 7. None of the production wells analyzed using Stiff and Piper diagrams show an indication of seawater intrusion.

The complete set of chemographs is included in Appendix B. This year, the Sand City Public Works Corp. Yard well has been included in Appendix B (Figure B-23) because even though it is not a dedicated monitoring well, it is a well with the highest chloride concentrations in the basin and should be monitored closely, and compared with other nearby wells. Note: Figure B-23 is shown below.

The Sand City Public Works Corp. Yard well has had increasing chloride concentrations since last year. The most recent concentration of 345 mg/L is not as high as recorded historically, so the increase is within the range of fluctuations historically observed.

Sand City's Public Works Corp Yard well continues to be the only coastal well in the Southern Coastal subarea with measured chloride data, and has the highest concentration of all shallow wells (345 mg/L). Although this is an 83 mg/L increase over last year's concentration, it is still within the range of concentrations measured in the well since Water Year 2011 (Appendix B: Figure B-23). The Piper and Stiff diagrams, and sodium/chloride molar ratio for the well continue to suggest that the source of high chloride is not seawater.

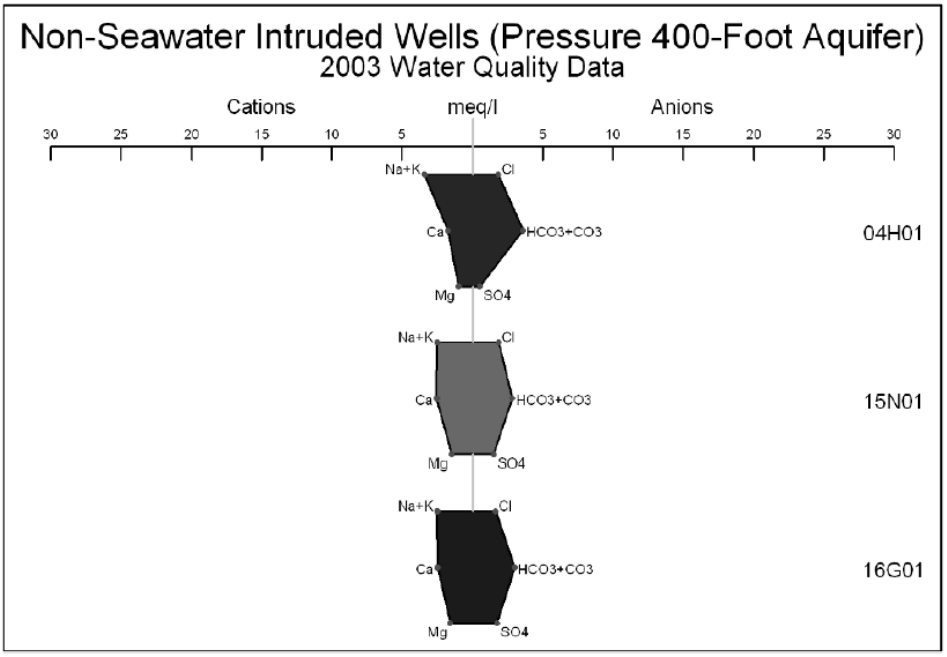

Figure 6: Stiff Diagrams from Salinas Valley Wells without Seawater Intrusion (Source: MWCRA)

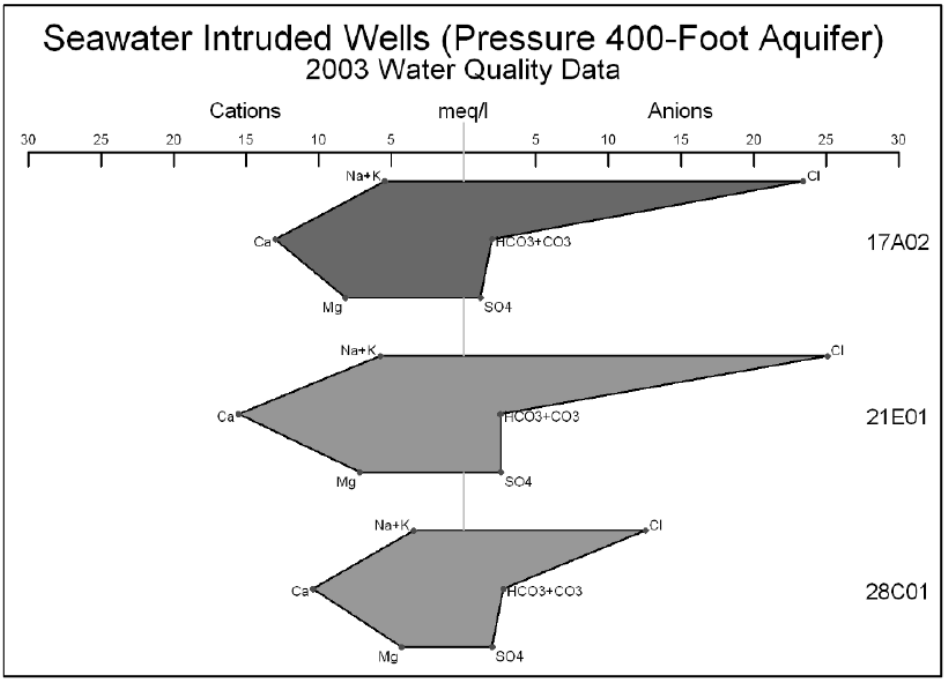

Figure 7: Stiff Diagrams from Salinas Valley Wells with Seawater Intrusion (Source: MWCRA)

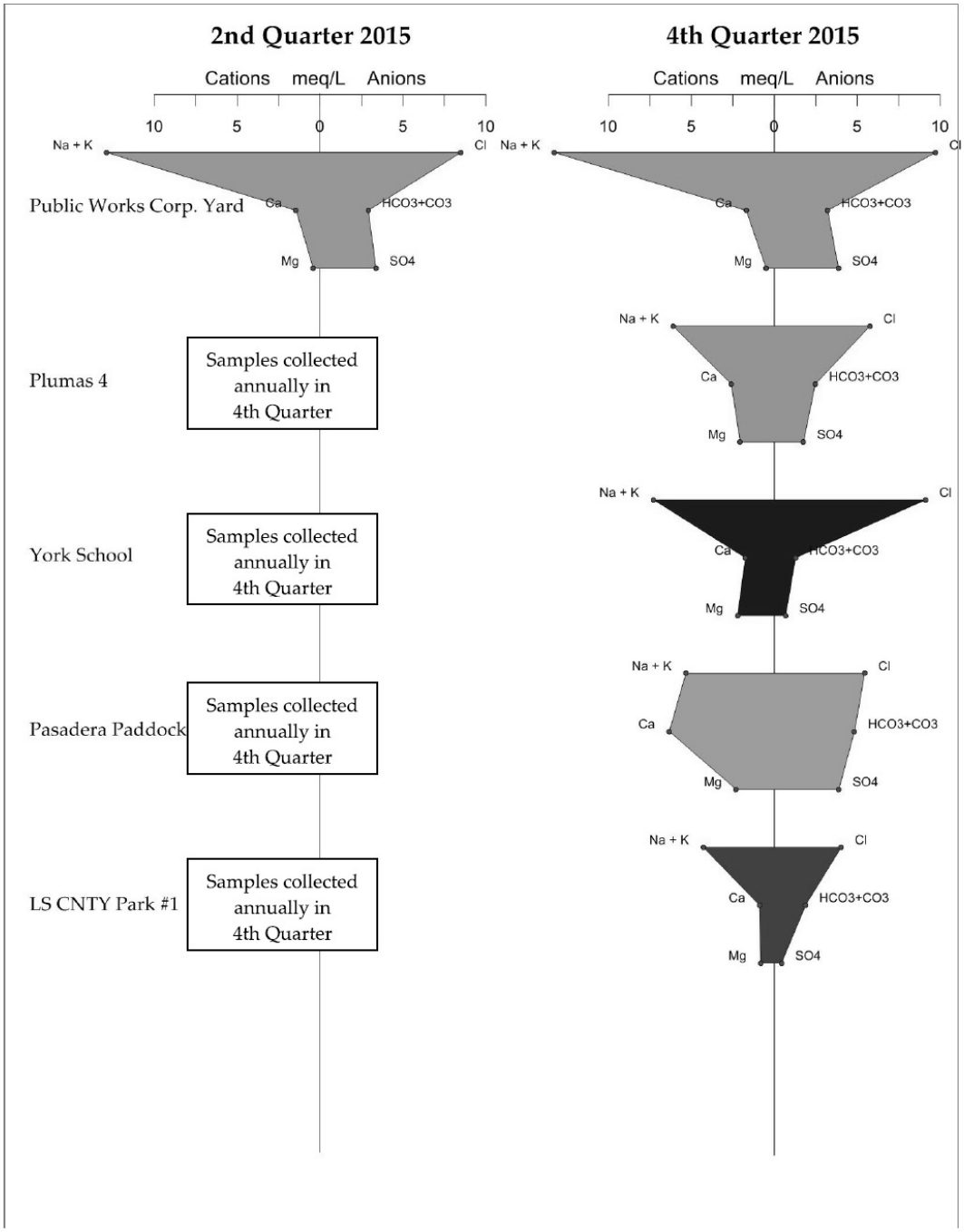

Figure 18: Stiff Diagrams for Southern Coastal and Inland Subarea Production Wells (Data source: Watermaster)

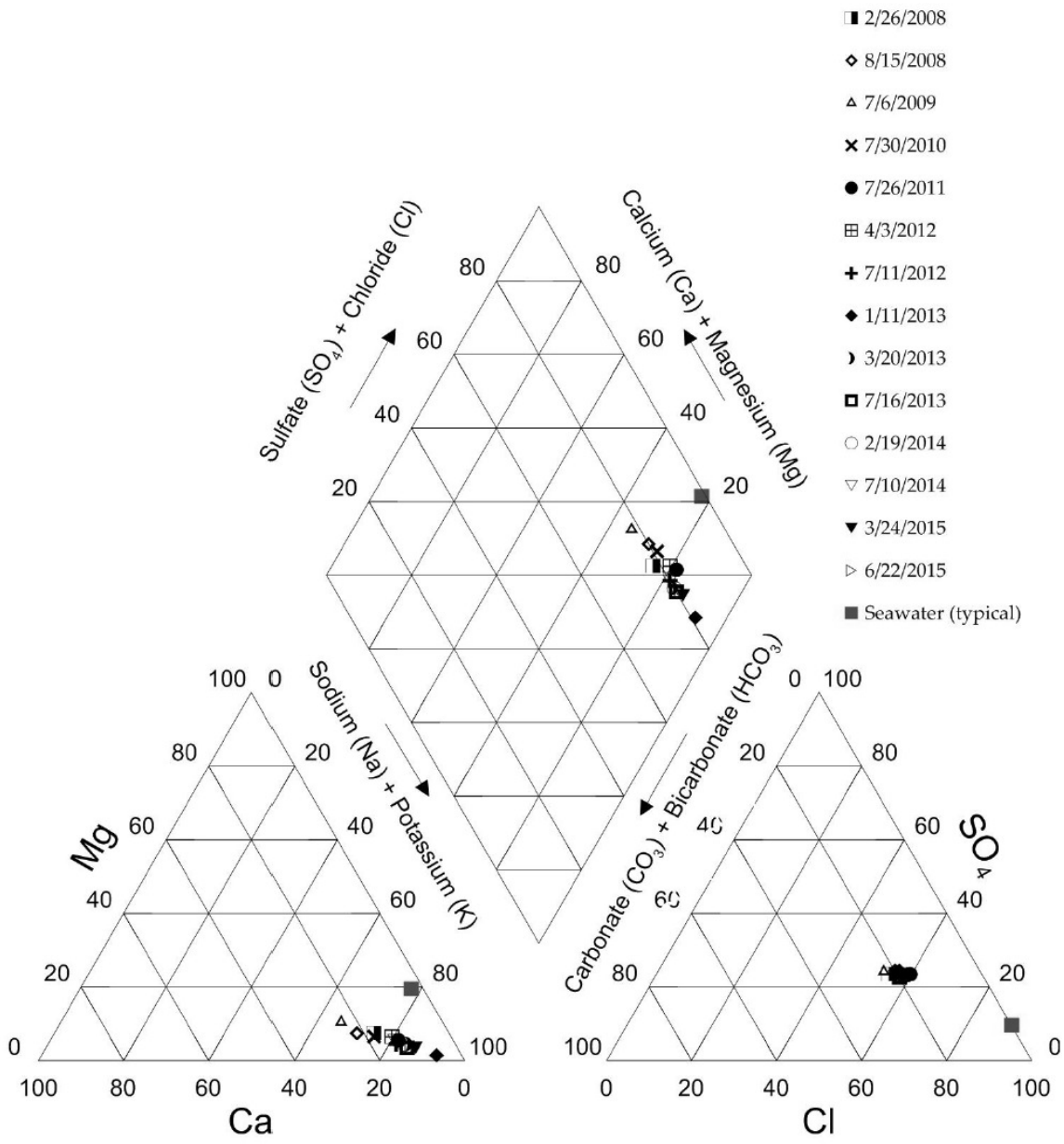

Figure A-23: Piper Diagram of Public Works Corp. Yard Production Well

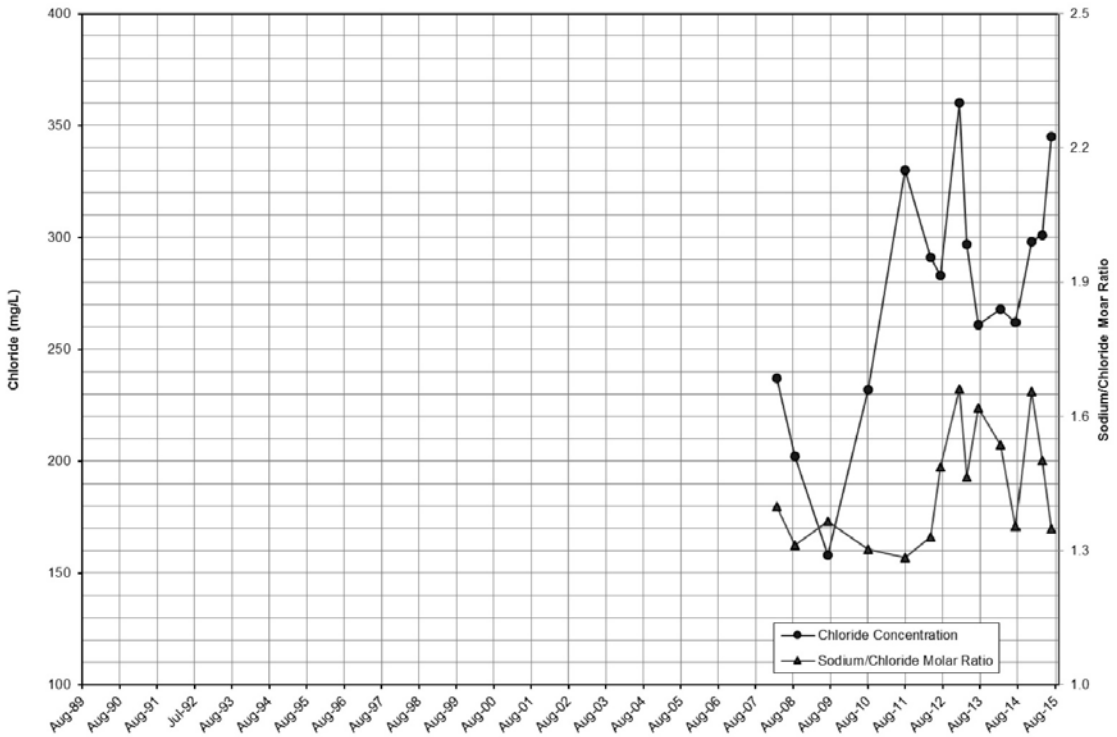

Figure B-23: Sand City Public Works Corp Yard Production Well

Below is Water Quality data from the Sand City Public Works Well, taken from the indicated Annual Reports:

2013 Annual Report

Well No. 165 Sand City Corp Yard

	Major Cations				Major Anions					Minor Ions					Physical		
	Ca^+	Na^+	Mg^+	K^+	HCO_3^-	SO_4^-	F^-	Cl^-	NO_3^-	Fe^{2+}	Mn^{2+}	HPO_4^-	B	Br^-	pH	TDS	EC (us/cm)
07/16/2013	34	274	6	5.1	157	133	3.5	261	31	<0.01	0.025	<0.1	1.17	0.7	7.4	860	1475
03/20/2013	33	282	8	4.9		157	3.6	297	17	<10	0.026	<0.1	1.33	0.7	7.5	957	1630
01/11/2013	23	388	2	4.6		200	5.3	360	4	<10	0.039	<0.1	1.91	0.8	7.9	1117	1930

2014 Annual Report

Sand City Corp Yard **WM No. 165**

		Major Cations				Major Anions					Minor Ions					Physical		
SPL Id.	Date	Ca^+	Na^+	Mg^+	K^+	HCO_3^-	SO_4^-	F^-	Cl^-	NO_3^-	Fe^{2+}	Mn^{2+}	HPO_4^-	B	Br^-	pH	TDS	EC (us/cm)
AB17763	7/10/14	34	230	7	5	160	142	3.4	262	27	<0.010	0.028	<0.1	0.99	0.6	7.4	857	1519
AB11890	2/19/14	34	267	7	5.3	156	138	3.4	268	30	<0.01	0.019	<0.1	1.07	0.4	7.5	868	1515

2015 Annual Report

ATTACHMENT 14
(From the 2013 Annual Report)

TECHNICAL MEMORANDUM REGARDING INVESTIGATION OF WATER QUALITY ANOMALIES AT THE CITY OF SAND CITY PUBLIC WORKS WELL

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

SEASIDE BASIN WATERMASTER MEMORANDUM 2013-03

Date: **November 25, 2013**
To: **Seaside Basin Watermaster**
From: **Joe Oliver, PG, CHg, Water Resources Division Manager**
Jonathan Lear, PG, CHg, Senior Hydrogeologist

Subject: **Focused Hydrogeologic Evaluation with Emphasis on Water Quality at the Sand City Corporation Yard Well in relation to Historical Water Quality of the Shallow Aquifer System in an area of the Southern Coastal Subarea of the Seaside Basin**

SUMMARY

The Seaside Basin Watermaster, through its Technical Advisory Committee (TAC) has requested that the Monterey Peninsula Water Management District (MPWMD) conduct a focused evaluation on water quality of the Sand City Public Works Corporation Yard well (Public Works well) in relation to historical water-quality conditions in the shallow aquifer system of the Seaside Groundwater Basin in the vicinity of the Public Works well, as part of the MPWMD's work on the Seaside Basin Monitoring & Management Program (MMP) in 2013. This memorandum summarizes that effort.

BACKGROUND

Results from the routine annual water-quality sampling of the Public Works well were discussed in the Watermaster's 2011 Seawater Intrusion Analysis Report (SIAR).[1] The 2011 SIAR recommended re-sampling of the Public Works well to confirm the Chloride concentration measured at 330 milligrams per liter (mg/L) in the annual sample collected in July 2011. As part of the Monterey County Superior Court's review and approval of the Watermaster's 2011 Annual Report, which incorporated the SIAR, presiding Judge Randall directed the Watermaster to provide the Court with the results of the re-sampling of the Public Works well.[2] At the May 9, 2012 TAC meeting, MPWMD provided an update report to discuss the water-quality fluctuations that had been observed at the Public Works well. The Watermaster subsequently provided a response to the judge's Minute Order[3], which included the historical water-quality data collected to-date from the well by the Watermaster. In that response, it was indicated that the Watermaster would in the future continue to track the water quality from this well for seasonal variations and long-term trends.

[1] HydroMetrics, November 2011. Water Year 2011 Seawater Intrusion Analysis Report, see pages 2, 24 and 59.
[2] Monterey County Superior Court Minute Order, filed March 7, 2012.
[3] Notice of Filing of Watermaster Response to March 7, 2012 Minute Order, filed August 7, 2012.

HYDROGEOLOGIC SETTING

The Public Works well is located in the southern coastal subarea of the Seaside Groundwater Basin, as depicted in the general Seaside Basin location map (**Figure 1**). Other former and existing wells within the southern coastal subarea are shown in **Figure 2.** The southern coastal subarea is bounded to the south along the trace of the Chupines Fault system, where the relatively impermeable shales of the Monterey Formation are uplifted to near sea level. A hydrogeologic boundary created by the Laguna Seca Anticline generally separates the northern and southern parts of the basin, and in the southern coastal subarea this plunging anticline feature merges with the Seaside Fault. The two primary aquifers in this part of the basin are the Paso Robles and Santa Margarita aquifers. The Public Works well is completed in the Recent Dune Sand / Aromas Sand Formation, which is collectively described herein as the "shallow aquifer system". This shallow aquifer system is situated stratigraphically above the Paso Robles and Santa Margarita aquifers. Due to faulting and erosion, the occurrence and significance of both the Paso Robles and Santa Margarita aquifers is considerably less than in the northern coastal subarea, where most of Cal-Am's Seaside production wells are located. Near the coast, a continuous clay layer has been mapped between the shallow aquifer system and the deeper Paso Robles and Santa Margarita aquifers, as depicted in the cross section from a previous hydrogeologic investigation report, which is shown as **Figure 3** for illustration purposes. The inferred thicknesses of the Paso Robles and Santa Margarita aquifer sediments at this location is approximately 100 feet and 50 feet, respectively, compared to at least 300 feet and 200 feet of thickness for these units throughout much of the northern coastal and northern inland subareas of the basin. Saturation within the shallow aquifer system is restricted to a relatively narrow strip of land along the coastline.

HISTORICAL GROUNDWATER QUALITY IN VICINITY OF PUBLIC WORKS WELL

As part of this investigation, a detailed search of available well records and reports was made in an attempt to locate historical water-quality data from this area of the basin. Based on this search, it was concluded that historical groundwater-quality availability from wells completed in the shallow aquifer system in the coastal area of the basin is sparse. Nonetheless, where references were made to coastal groundwater quality or where such data were included in the historical documents that were found, that information is summarized briefly below in chronological order of the dates of the documents that were reviewed.

California Department of Water Resources, 1974. ***Zone 11 Investigation, Carmel Valley and Seaside Ground Water Basins, Monterey County*****, July 1974.**

On page 16, the Seaside area stratigraphy is described as consisting of two aquifers: the recent sand dune deposits near the coast are characterized as a "minor aquifer", and the "main aquifer" that underlies the sand dune deposits and is equivalent to the Paso Robles Formation to the east and the Aromas Formation to the north. Also on page 16, there is a discussion of water quality that states:

> "The Orange well had a good yield from this upper aquifer, but the aquifer is open to sea water intrusion, and when heavily pumped, the salinity in the Orange and Monte wells tends to increase noticeably. Since the Elm and Playa wells are also open to this aquifer, they could have the same problem."

In addition, there is a brief discussion of sea-water intrusion in the Seaside area on page 17 of this report. This discussion includes:

> "The minor aquifer is subject to sea water intrusion as shown particularly by the Orange and Monte wells. The Elm and Playa wells, located farther from the bay, have not given such evidence of sea water intrusion."

Unfortunately, there are no water-chemistry data that were included with this report.

California Department of Water Resources, 1975. Sea-Water Intrusion in California, Inventory of Coastal Ground Water Basins. DWR Bulletin 63-5, October 1975.

This DWR report includes descriptions regarding the status of sea-water intrusion in various coastal basins throughout the state. In the Monterey Peninsula area, this included the basin listed as "Basin 150" (page 190), that is shown on Figure 21 of the report as spanning the coastline roughly from Monterey up through former Fort Ord. On Figure 21 of the report, this basin is described as "Chlorides Exceed 100 ppm" based on data collected from 1970-71. The figure is shown as **Figure 4** of this memorandum. In the description on page 190 of the report, seawater intrusion is discussed as follows:

> "Several local areas of high mineral concentrations found in the Monterey area near the coast during the summer of 1953 probably represent the natural quality of available ground water. Near Seaside, chloride concentrations ranging from 69 to 204 ppm are found in an area of about 4 square miles, extending 3 miles inland. The condition represents available native ground water."

One water-quality analysis from a well in the Sand City area is included in Table 85 (page 192) of this report. This well, listed as "15S/01E-22C1", is shown in Table 1 of the Staal, Gardner & Dunne, Inc. (SGD, 1997) coastal Seaside hydrogeologic assessment report as the "AMFAC" well in Sand City, however, no depth or aquifer completion data are available for this well. This well is located approximately 3,000 feet northwest of the Public Works well on the north side of the Seaside Fault. Notes regarding this well in MPWMD files indicate the well was drilled in 1944 or 1945, has no well construction log, had several water-quality samples analyzed by California Water and Telephone Company in 1955-56, and was being used to supply water to several nearby businesses in Sand City in 1981. Even though the aquifer completion of this well is not known, this well appears to have the most historical water-quality data available in the Sand City area. Accordingly, the water-quality analyses that could be located for this well and for other wells in the Sand City vicinity both from this report and other DWR annual reports are provided in **Table 1** of this memorandum for historical reference. As shown in **Table 1**, the chloride concentration at the AMFAC well ranged from 114 to 128 mg/L from 1962 to 1968.

Muir, K.S., 1977. ***Initial Assessment of the Ground-Water Resources in the Monterey Bay Region, California.*** **US Geological Survey Water-Resources Investigations 77-46.**

On page 26 of this report, the "Carmel Subbasin" is described as being comprised of two groundwater systems; one is in the Carmel Valley, and the other is in the Canyon Del Rey area. The boundary of the Canyon Del Rey groundwater system is shown here as **Figure 5**; this boundary is generally similar to the current depiction of the Seaside Basin boundary shown in **Figure 1**. On page 28 of this report under "Ground-Water Quality", it is stated

> "Seawater intrusion occurs in the Canyon Del Rey area. At the present time (1977) the intrusion seems to be limited, and it affects only those wells that pump from the sand dune deposits near Monterey Bay."

Presumably this reference to seawater intrusion reflects earlier discussion in the 1974 DWR Zone 11 investigation described above. Unfortunately there are no water-chemistry results included as part of this report.

Logan, J., 1982. ***Hydrogeology of the Seaside Area*****, June 1982. Unpublished report prepared for MPWMD.**

This report provides a detailed water-chemistry section that indicates 318 chemical analyses were reviewed as part of the analysis. The raw data for these chemical analyses are not included with the report. As discussed on page 35 of the report, some of these analyses were plotted for comparison on a geochemical diagram in Figure 44 of the report. In that figure, it is noted that 13 chemical analyses were available for the Cal-Am "Orange" well, and the author on page 35 interpreted from Figure 44 that the Orange well "contained water having a chloride content of nearly 60 percent and with the highest concentration (T = 13) of any of the waters studied".

Muir, K.S., 1982. ***Ground Water in the Seaside Area, Monterey County, California.*** **US Geological Survey Water-Resources Investigations 82-10.**

A discussion regarding the "paucity of water quality data" of wells situated adjacent to Monterey Bay in the Seaside Basin is provided on page 30 of this report. This discussion includes:

> "The limited water-quality data collected in September 1980 (table 6) and those shown in figure 10 indicate that there has been no general seawater intrusion in the Seaside area. The depth of wells sampled in September ranged from about 60 ft to more than 600 ft, and their pumping water levels were all below sea level. Well 15S/1E-21 H1 is the only well sampled that had water with a relatively high chloride concentration – 700 mg/L. This 70-foot-deep well is located in the sand dunes within a few hundred yards of Monterey Bay and has always had water with a high chloride concentration. In 1969, the chloride concentration was 1,600 mg/L, and in 1975 the chloride concentration was 1,090 mg/L."

MPWMD records show that Well 21H1 was completed for the Seaside Sanitary District in 1969. It is our understanding that the well was used for chlorine control of effluent as part of the

wastewater treatment operations at that plant that was later taken over by the Monterey Regional Water Pollution Control Agency until the plant shut down when the regional treatment plant took over treatment of wastewater from the service area of the former Seaside plant. The depth of this well shown on DWR Drillers Report No. 13348 is confirmed at 70 feet, which is within the shallow aquifer system. The location of Well 21H1 is approximately 950 feet from the Public Works well. It is unknown if this well still exists.

Table 6 of the 1982 Muir report provides several water-quality results from wells in the Seaside area; however, there are no complete general mineral water-quality data from wells in the vicinity of the Public Works well in this table or elsewhere in the report. Figure 10 of the 1982 Muir report shows plots of chloride concentration from selected Seaside area wells. Included in this graph, which is shown here as **Figure 6**, are plots for two nearby former Cal-Am wells, the "Elm" well (Well 15S/1E-21R1) and the "Orange" well (Well 15S/1E-21J1). The Elm and Orange wells are now abandoned and destroyed, but were located approximately 2,200 and 1,400 feet from the Public Works well, respectively. The Elm well plot showed chloride concentration in the 160 to 200 milligrams per liter (mg/L) range with no clear trend for the period from 1966 to 1978. The Orange well plot, however, showed considerably more fluctuation in chloride concentration from less than 150 mg/L to greater than 550 mg/L during the record period from 1960 to 1977.

Staal, Gardner & Dunne, Inc., 1992. ***Feasibility Study, Saline Ground Water Intake Disposal System, Sand City, California.*** **Unpublished report prepared for MPWMD.**

The focus of this investigation was on the feasibility of developing the shallow aquifer system in the coastal part of Sand City for desalination plant source water and brine disposal. The report provided analysis of the shallow aquifer system's hydraulic characteristics, and also included water-quality data from one of the observation wells installed as part of the investigation. This well, OB-4, was located 160 feet from the shoreline at the end of Bay Avenue (approximately 1,130 feet from Public Works well). At this location adjacent to the coastline, the water quality in this 57-foot deep well (bottom elevation about -40 feet AMSL) was approximately 60% of typical Monterey Bay seawater (SGD, 1992, page 13). The chemical analysis of water from this well is shown in **Table 1**.

DISCUSSION OF HISTORICAL WATER PRODUCTION IN SAND CITY AREA

Only incomplete water production records are available for wells that are known to have historically produced water from the shallow aquifer system near the coast in the southern coastal subarea of the basin. Of those wells, the ones with the better production history are listed in **Table 2**. The earliest date that production data are available for these wells is 1966, which is the year that California American Water acquired one or more small water systems that had been operating in this area of the basin (one such system was known as the East Monterey Water Company). During the 11-year period from 1966 until 1977, when the last well production was recorded, a total of 2,830 acre-feet had reportedly been produced from these wells. The amount of pre-1966 production is unknown as these production records could not be located. Most of the available historical production (77%) occurred from the three closest wells to the Public Works well, i.e., the Orange, Monte and Elm wells. The locations of these three former

municipal water supply wells in relation to the Public Works well is shown here in **Figure 7**, which is from the 1982 Logan report prepared for MPWMD.

Based on the anecdotal evidence and minimal water-quality records as summarized from the reports described above, it is surmised that production from these wells was largely discontinued due to the poor quality of the water that resided in the shallow aquifer system, and was likely aggravated by overpumping that induced poorer water quality (i.e., seawater intrusion) locally into this system.[4] As part of this investigation, efforts were made to locate historical water quality for these wells from archived records on file at the MPWMD office and through requests made to Cal-Am staff. Despite these efforts, no historical water quality records could be located for any of the former shallow municipal production wells that existed in this area of the basin. These records were likely sent to archive storage at some point and subsequently destroyed. Without these historical water-quality data to review, it was not possible to definitively unravel what changes in water quality occurred as a result of past production practices, and how these antecedent conditions might be affecting current water quality in this area of the basin.

More recently, water is being produced from shallow wells located adjacent (i.e., approximately 220 to 280 feet) to the coastline as feedwater intake for the Sand City desalination plant. The plant began official production into the Cal-Am delivery system in WY 2010 (April 2010). Through WY 2013, approximately 750 AF of desalinated product water have been produced for Cal-Am system customers from the plant.

DISCUSSION OF PUBLIC WORKS WELL WATER QUALITY

Currently, the Public Works well is the only well sampled for water quality under the Watermaster's Monitoring and Management Program (MMP) that has casing perforations in the shallow aquifer system. All the other wells sampled as part of the MMP have completions in the Paso Robles, Santa Margarita, or Purisima formations, or in some cases more than one of these formations. The Public Works well (Well # 15S/01E/22Ed) was drilled by Dougherty Pump & Drilling in 1993 and is completed to a depth of 140 feet. Per the DWR log for this well, the screened interval from 50 to 140 feet straddles sand deposits attributable to the shallow aquifer system down to 96 feet, with sediments likely transitioning to the Paso Robles Formation below this depth down to 136 feet. The log indicates Monterey Shale at the bottom of the well. With the well's location 1,200 feet from the shoreline and its primary completion in the shallow aquifer system, hydrogeologic conditions do not prevent potential seawater intrusion under the right hydraulic conditions. Based on recent work conducted as part of the annual seawater analyses for the Watermaster, however, it does not appear that the recent water-quality fluctuations observed from the Public Works well are directly attributable to emerging seawater intrusion at this location. **Figure 8** shown here is from the WY 2012 Seawater Intrusion Analysis Report (HydroMetrics, 2012, Figure A-21) and while the data on this Piper diagram do indicate a change in water quality, this evolution currently does not appear to trend towards the seawater-quality endpoint. The Public Works well water chemistry results from samples collected since 2008 and shown in **Table 3** also suggest other factors besides typical emerging seawater intrusion may be influencing water quality at this location. In particular, the levels of

[4] This understanding is also based on the author's personal communications with a former Cal-Am operations engineer (G. Haas) who indicated that based on his review of well data in the 1990's, the water quality in this area of the basin was poor and of a very peculiar quality, but the specific nature of the water quality was not articulated at that time.

certain constituents, including nitrate, ammonia and fluoride are significantly out of range from other wells that are sampled for water quality under the MMP in the coastal area, and do not reflect values that would point to emerging seawater intrusion as the primary cause.

It is possible that groundwater flow dynamics associated with current operations at the Sand City desalination plant have set up a condition that is causing impaired water quality at the Public Works well due to: (1) influx of poor quality native water that has had a relatively long residence time attributable to slow movement due to low hydraulic gradients in the shallow aquifer system, (2) renewed circulation of non-native water from historical incursion of seawater into this area of the basin, or (3) some combination of both.

CONCLUSIONS

- Sparse historical groundwater-quality data are available from the southern coastal subarea of the Seaside Basin in the vicinity of the Public Works well.
- Groundwater was produced from several wells for municipal supply in this area of the basin for a known period from 1966 to 1977, and for an unknown period prior to 1966.
- Based on the historical reports that were reviewed and other anecdotal information, it appears that past groundwater production practices from this area of the basin contributed to local seawater intrusion prior to the time that use of those wells was discontinued.
- Due to the paucity of groundwater-quality data that could be discovered as part of this effort, it is not possible to estimate the extent or degree of historical seawater intrusion that has occurred in the southern coastal subarea of the basin, or the extent that these antecedent conditions may have contributed to current observed water-quality conditions at the Public Works well.

RECOMMENDATIONS

- Quarterly water-quality sample collection from the Public Works well should continue to develop a longer record of observed water-quality fluctuations at this well.

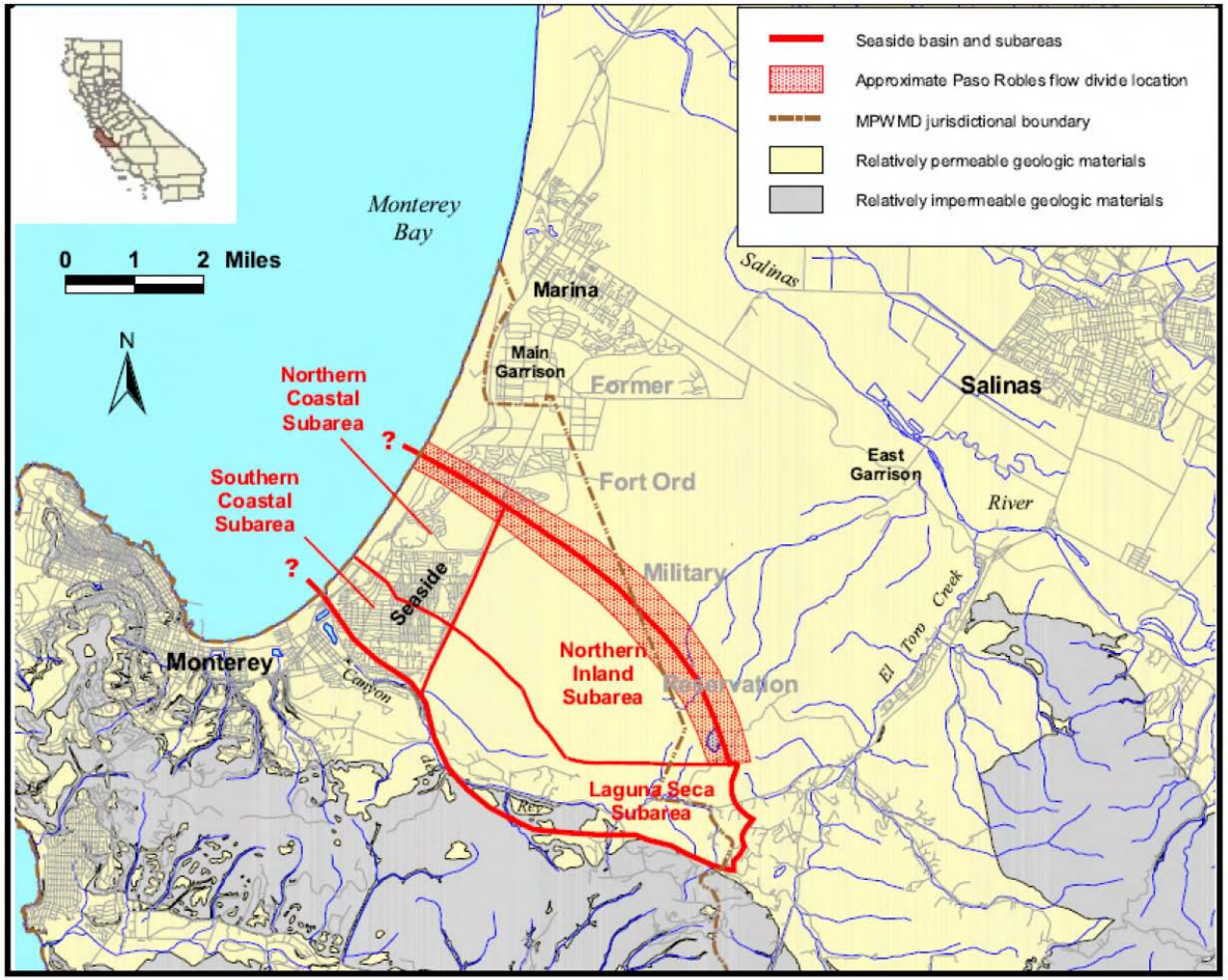

Figure 1. General location of Seaside Groundwater Basin and Basin Subareas (from Yates and others, 2005, Figure 1).

Figure 2. Map showing well locations in the Southern Coastal Subarea of the Seaside Basin.

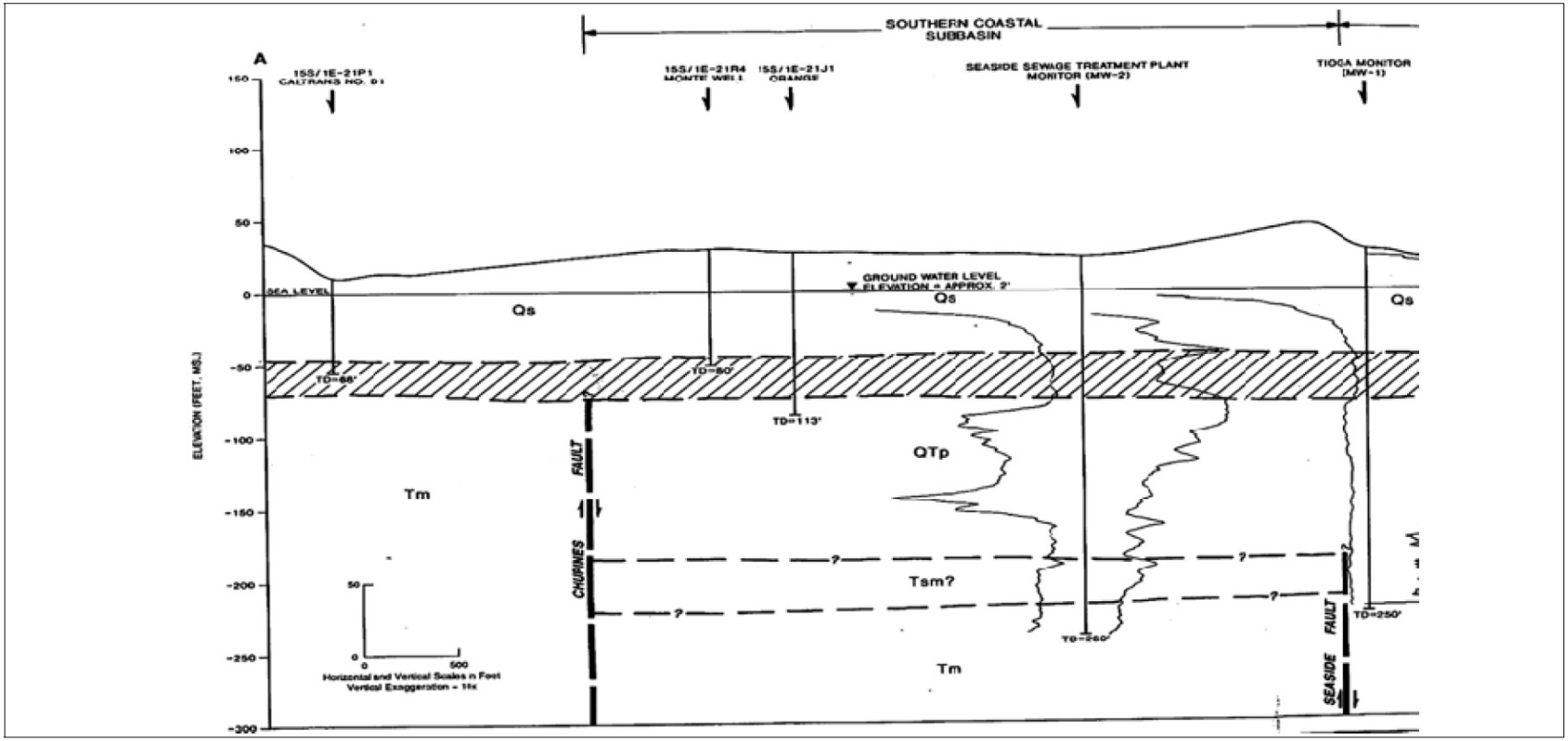

Figure 3. Part of hydrogeologic cross section parallel to shoreline in Southern Coastal Subarea of Seaside Basin (adapted from Staal, Gardner & Dunne, Inc., 1992, Plate 2). Shaded area denotes continuous clay layer.

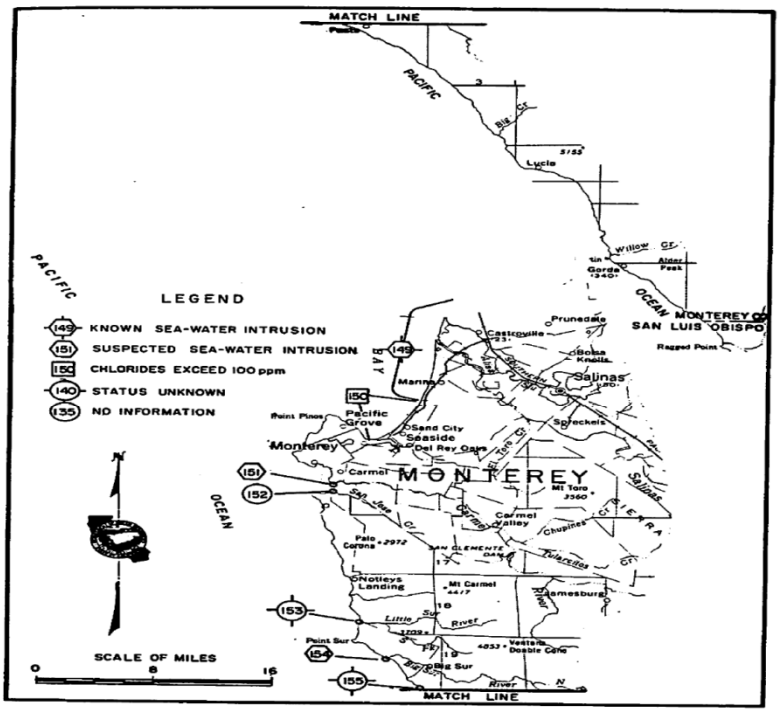

Figure 4. Status of Sea-Water Intrusion, Monterey County, 1970-71 (from DWR Bulletin 63-5, Figure 21).

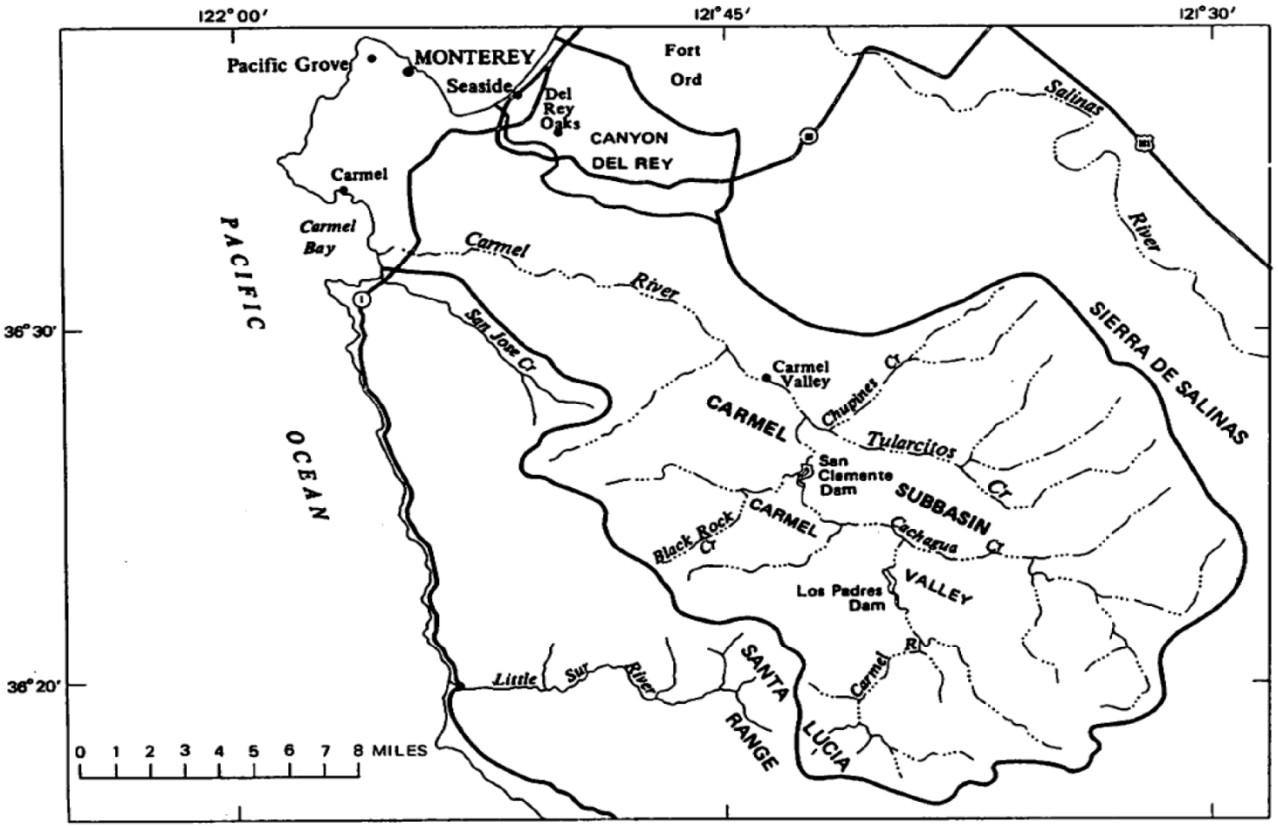

Figure 5. Carmel Subbasin (from Muir, 1977, Figure 5).

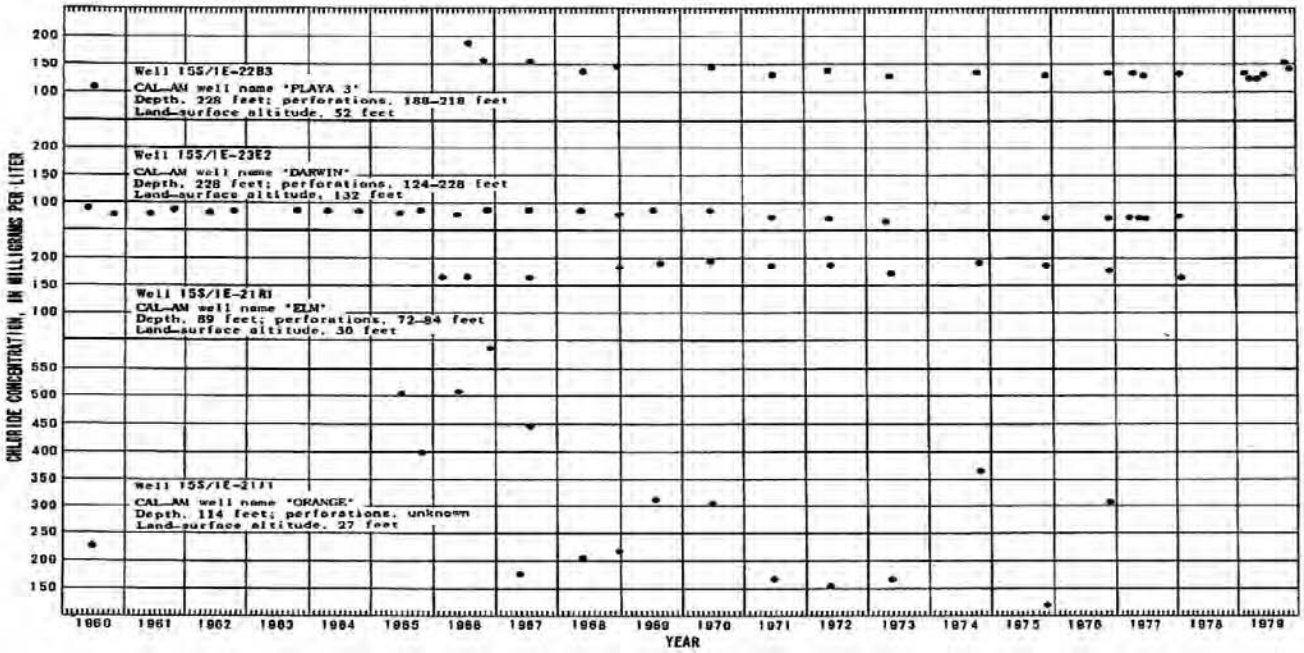

Figure 6. Chemograph showing chloride concentrations for selected wells the coastal subareas of the Seaside Basin (from Muir, 1982, Figure 10).

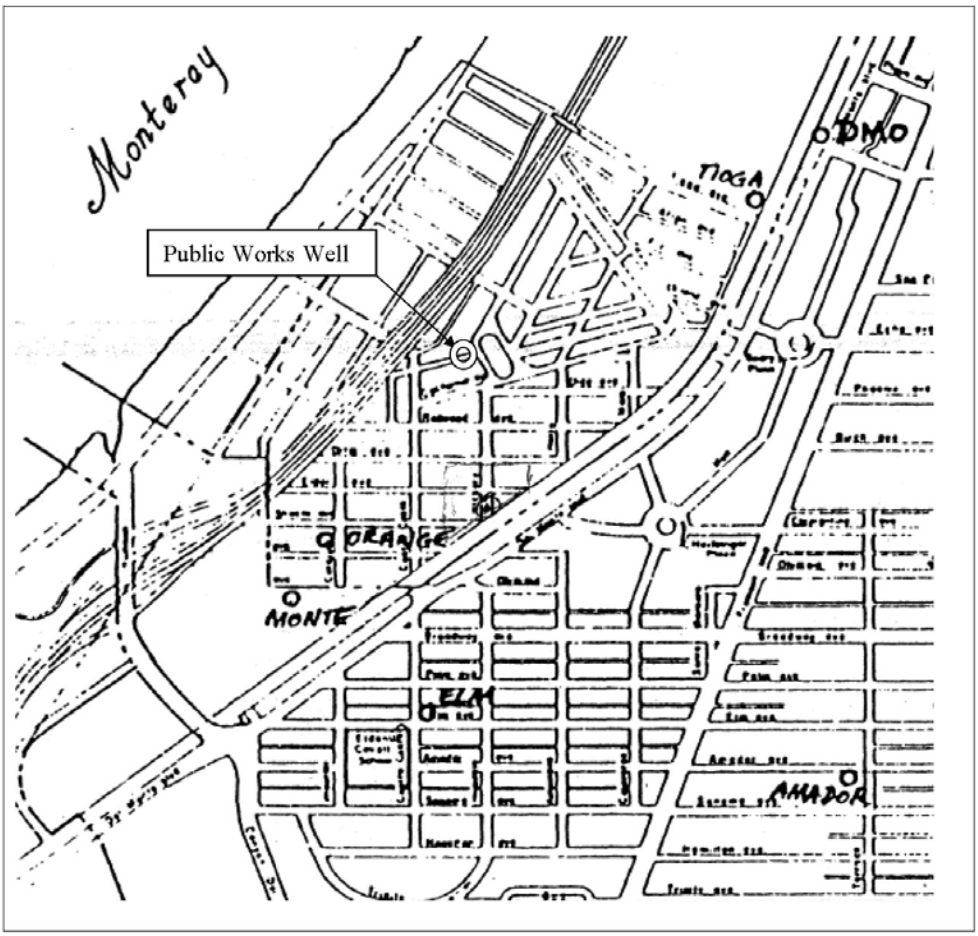

Figure 7. Portion of Seaside Basin coastal area showing older supply wells near Sand City Public Works Well (adapted from Logan, 1982, Figure 48).

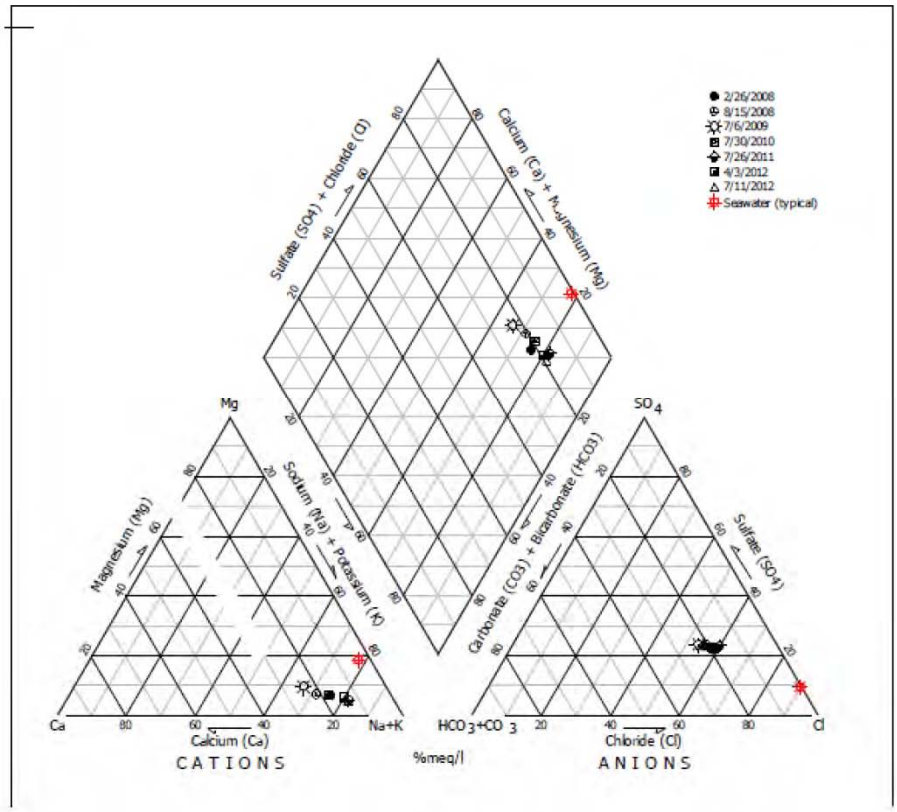

Figure 8. Piper Diagram of Public Works Well (from HydroMetrics, 2012, Appendix A, Figure A-21.

Table 1

GROUNDWATER-QUALITY ANALYTICAL RESULTS

Water Quality from Selected Locations in vicinity of Sand City
Well Results from Shallow Dune Sand Aquifer System

Units are milligrams per liter unless otherwise noted.

Water Quality Constituent	Data Source	Sample Date	Well Depth (feet)	Approx. dist. From Public Works well (feet)	Total Organic Carbon	Calcium	Sodium	Magnesium	Potassium	Bicarbonate	Sulfate	Chloride	Nitrate Nitrogen (as NO3)	Ammonia Nitrogen (as N)	Silica	Fluoride	Iron	Manga-nese	Orthophos-phate	Barium	Strontium	Boron	Bromide	Hardness (as CaC03)	Total Alkalinity (as CACO3)	pH	Specific Conductance (micromhos / cm)	Total Dissolved Solids
Drinking Water Standard(1)					NA	NA	NA	NA	NA		250 500 600 (1)	250 500 600 (1)	45	NA	NA	NA	0.3	0.05		NA	NA	NA	NA	NA	NA	NA	900 1600 2200 (2)	NA
Well Name and Number																												
AMFAC 15S/01E-22C1	1	7/11/1962		2800		49	75	19	2.8	165	54	114	8.5		35	0.2						0.1				8.2	705	438
AMFAC 15S/01E-22C1	2	8/17/1966		2800		53	79	23	3.4	196	67	120	7.3									0.1				8.2	849	504
AMFAC 15S/01E-22C1	1	8/29/1967		2800		67	85	24		190		128										0.2					877	
AMFAC 15S/01E-22C1	4	8/14/1968		2800			87			203		128	12											236		7.3	910	
Seaside Sanitary 15S/1E-21H1	5	10/31/1969	70	960		196		107		107		1600					<0.05							928	88	7.0	4000	
Seaside Sanitary 15S/1E-21H1	5	11/12/1975	70	960		132		89		151	220	1090					<0.01							700	124	6.7	3500	
MPWMD OB-4	6	7/13/1992	57	1130		384	7507	151	290	140	1429	11750	0.71		50	0.95	0.450	3.340		0.03	9.00		45			6.8	37500	20132
Calabrese - Tioga (WM#263)	7	9/25/1980	58	1860								130														7.9	981	
Miscellaneous Seawater Analyses																												
Typical Seawater	8					400	10500	1350	380	143	2712	19000					0.010					0.24					50000	34475
Typical Seawater	9					410	10500	1350	390	142	2700	19000			6	1.30	0.003	0.002		0.02	8.00	4.50	67					
Monterey Bay Seawater	10					400	10600	1270		140	2690	19000														7.5		34400

Chemical Analyses Data Sources:

1 California Department of Water Resources, 1965. *Hydrologic Data: 1963, Volume III: Central Coastal Area.* Bulletin 130-63. Table E-1.
2 California Department of Water Resources, 1968. *Hydrologic Data: 1966, Volume III: Central Coastal Area.* Bulletin 130-66. Table E-1.
3 California Department of Water Resources, 1969. *Hydrologic Data: 1967, Volume III: Central Coastal Area.* Bulletin 130-67. Table E-1.
4 California Department of Water Resources, 1975. *Sea-Water Intrusion in California, Inventory of Coastal Ground Water Basins.* Bulletin 63-5. Table 85, Page 192.
5 MPWMD record notes on DWR Log No. 13348, Seaside Sanitary District well.
6 SGD, 1992. *Feasibility Study, Saline Ground Water Intake/Disposal System, Sand City, California.* Appendix C.
7 MPWMD Well Record sheet for Well# 15S/01E/22Da. The well that this sample was collected from is the older of two wells at this location, known as the Calabrese "Dune well". Sample collected by K. Muir, USGS.
8 Atkinson, S.F. and others, 1986. *Salt Water Intrusion, Status and Potential in the Contiguous United States.* Lewis Publishers, Inc. Page 27.
9 Hem, 1985. Study and Interpretation of the chemical characteristics of natural water. USGS WSP 2254. Table 2, Page 7.
10 James M. Montgomery, 1992. MPWMD Desalination Preliminary Design, Final Report. March 1992. Table 2-2.

Table 2

Production Wells in Coastal Portion of Seaside Basin, Southern Coastal Subarea that Formerly Operated as Municipal Supply Wells

Well Name	Twp/Rng/Sec	Distance From Public Works Well (feet)	Drill Date	Well Depth (feet)	Test Pumping Rate (gpm)	Test Pumping Date	Production Data Available		
							From	To	Production (AF)
Orange	15S/01E/21Jb	1,400	1956	116	643	NA	1966	1976	1,233
Monte No. 4	15S/01E/21Ja	2,000	1963	80	20	7/1/1966	1966	1973	278
Elm No. 1	15S/01E/21Ra	2,200	1966	86	100	NA	1966	1967	36
Elm No. 4	15S/01E/21Rb	2,200	1968	87	160	1/1968	1968	1976	622
Amador	15S/01E/22P2	3,000	1967	NA	NA	NA	NA	NA	NA
Harcourt	15S/01E/27D1	3,300	1963	NA	NA	NA	1966	1976	425
Palm	15S/01E/22Q1	4,200	NA	NA	NA	NA	1966	1977	230

NOTES:
1. Well completion data from MPWMD well data files.
2. Well location data from Logan, 1982, *Hydrogeology of the Seaside Area*, Figure 48. More distant wells are shown on this figure, but no data are available for them (i.e., Lowell, Flores).
3. Well number ending in a numeral represents official State-assigned number; well number ending in a letter represents unofficial MPWMD-assigned number.
4. Production data from Fugro West, Inc., 1997, *Hydrogeologic Assessment, Seaside Coastal Groundwater Subareas*, Table 3. This table was based on production data available in MPWMD files. Production data prior to 1966 could not be located.

Table 3

Sand City Corporation Yard Well Water Quality Sample Results

All values in mg/L, except pH (units), EC (umhos/cm)

Sample Date	Calcium	Sodium	Magnesium	Potassium	Bicarbonate	Sulfate	Chloride	Nitrate Nitrogen (as NO3)	Ammonia Nitrogen (as N)	Fluoride	Iron (Total)	Manganese (Total)	Ortho-phosphate	Barium	Iodide	Boron	Bromide	Hardness (as CaCO3)	Alkalinity (as CaCO3)	pH	Total Organic Carbon	EC	TDS
2/26/2008	44	215	10	6.0	159	134	237	39	0.22	2.2	<0.1	<0.020	<0.2			0.88	0.70	151	130	7.7	1.10	1360	823
8/15/2008	46	172	9	5.6	127	116	202	60	0.24	1.6	<0.1	0.025	0.4			0.76	0.70	152	104	7.6	1.90	1187	710
7/6/2009	45	140	11	6.0	115	95	158	56	0.37	0.5	<0.05	0.022	<0.05			0.46	0.60	158	94	7.5	0.84	1017	632
7/30/2010	42	196	9	5.5	132	125	232	29	0.58	2.2	0.016	<0.020	<0.05			0.67	0.39	142	108	7.2	0.92	1207	735
7/26/2011	39	275	9	5.1	159	174	330	19	1.22	4.2	<0.01	0.022	<0.05			1.05	0.94	134	130	7.9	1.00	1640	992
12/1/2011	33	314	6	4.8	166	165	326	28	1.33	3.7	<0.01	0.029	<0.05			1.39	0.67	107	136	7.6	0.57	1604	906
4/3/2012	38	251	10	5.3	160	152	291	30	1.25	3.5	<0.01	0.019	<0.05			1.08	0.68	136	131	7.3	0.70	1532	897
7/11/2012	40	273	8	5.2	159	147	283	31	0.77	3.5	<0.01	0.023	<0.1			1.11	1.04	133	130	7.5	0.53	1492	855
1/11/2013	23	388	2	4.6	205	200	360	4	1.55	5.3	<0.01	0.039	<0.1	0.029		1.91	0.80	66	168	7.9	0.73	1930	1117
3/20/2013	33	282	8	4.9	176	157	297	17	1.31	3.6	<0.01	0.026	<0.1	0.065	0.028	1.33	0.70	115	144	7.5	0.78	1630	957
7/16/2013	34	274	6	5.1	157	133	261	31	1.90	3.5	<0.01	0.025	<0.1	0.065	0.028	1.17	0.70	110	129	7.4	0.53	1475	860
Minimum	23	251	2	4.6	115	133	158	4	0.22	0.5	0	0.019	0	0.029	0.028	1.08	0.39	66	94	7.3	0.53	1475	632
Maximum	40	388	10	6.0	205	200	360	31	1.90	5.3	0	0.039	0.4	0.065	0.028	1.91	1.04	158	168	7.9	1.90	1930	1117
Mean	34	297	7	5.1	156	159	271	24	0.98	3.1	- -	0.027	- -	0.053	- -	1	1	128	128	7.5	0.87	1611	862

NOTES:
1. Sand City Corporation Yard well is ID# 165 in Watermaster database.
2. DWR Log# 490449 filed 1/29/93; Mo. Co. Health Permit #W6966; well depth = 140 ft; well screen = 50 - 140 ft.
3. Sample analyses are as reported by Monterey Bay Analytical Services; where Bicarbonate was not reported, value is calculated as 1.22 x Alkalinity.

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

** * * AGENDA TRANSMITTAL FORM * * **

MEETING DATE:	September 14, 2016
AGENDA ITEM:	4
AGENDA TITLE:	Approve Work Plan for FY 2017 Management and Monitoring Program (M&MP) and FY 2017 and 2018 M&MP Operations and Capital Budgets
PREPARED BY:	Robert Jaques

The Schedule calls for the TAC to approve the proposed Management and Monitoring Program (M&MP) Work Plan and Budgets at its September 2016 meeting. Attached are the proposed M&MP 2017 Work Plan, and the proposed M&MP Operations and Capital Budgets for 2017 and 2018. The Board has asked that two-year budgets be developed to alert the Board to potential changes in scope and/or cost in near future years.

The M&MP 2017 Work Plan which is attached reflects revisions resulting from the TAC's discussion when it reviewed the Draft M&MP 2017 Work Plan at its August 10, 2016 meeting, as well as subsequent input from HydroMetrics, Martin Feeney, and MPWMD.

The following are the principle revisions since the version contained in the August 10th TAC Agenda packet:

Task I.2.b.3.: The monitoring frequency for the Sand City Public Works Well has been reverted back to annually beginning in 2017. The basis for this change was covered in the preceding agenda item.

In WY 2017 we are to sample the BLM monitoring well site (SBWM-5). We had previously determined we would sample this site every 3 years, and WY 2014 was the last year we sampled it, so it is due for sampling in WY 2017. The cost for this sampling work is included under Task I.2.b.3.

The net result in these changes is a small increase in the budget for this Task in 2017.

Task I.2.b.6: MPWMD reports they no longer have the staff to prepare the 2nd report that was originally listed under this Task. That 2nd report was described as follows: "One report containing a compilation of the available water level records for monitor wells that are part of the Seaside Basin Monitoring & Management Plan (M&MP) in a format to allow assessment of the long-term trends in water levels in each of the wells. This report will contain a table showing pertinent well construction data, existing average annual water level changes, and projected future water level changes. This will be accompanied by a brief description and recommendations regarding those monitor wells for which future monitoring complications may arise due to falling water levels."

Mr. Lear of MPWMD provided the following explanation: "I applaud the TAC's due diligence in this matter. However, MPWMD is undergoing a restructure including the elimination of Joe's former position. Staff reductions in the Hydrology Division require all resources to be focused on core District functions. Outside of collecting data and performing database management duties to support the Watermaster, the District no longer has the resources to continue to offer additional support as a groundwater consultant. I apologize for not catching this issue with the M&MP earlier, but in the

AGENDA ITEM:	4 (Continued)

version included the August TAC packet, the two reports were combined into one paragraph and it was unclear that they were 2 separate reports. Please remove report 2 from RFS 2017-01 in order to reduce the RFS to the level the District can support."

In view of this situation I recommend that we not perform this work at all. I believe Mr. Oliver came up with this as a "nice to do" evaluation so we would get a heads-up on the possible need to purchase new higher head sampling pumps if some more wells had their levels drop too far. We have already included $2,000 in the RFS to purchase one new sample pump if necessary. If more are found to be needed during the year we can always fund the purchase of additional pumps from the Contingency line-item that is set up in the M&MP Operations Budget. So during the course of the year if we encounter the need to purchase more than one new sample pump we can handle it that way and avoid the expense of having one of our other consultants perform this evaluation.

Task I.4.c: In 2016 the amount budgeted for this Task was $28,678. However, when the cost for HydroMetrics to prepare the 2016 SIAR was being negotiated they found that they always had considerable unspent budget left over in prior years. Consequently, their 2016 RFS was reduced accordingly and the actual amount spent on this Task in 2016 was considerably lower than the budgeted amount.

For 2017 the budget for this Task was increased slightly to reflect an increase in the hourly rate for one of HydroMetrics' staff members who works on this assignment. However, the budget was also decreased to reflect (1) fewer hours needed by MPWMD to interface with HydroMetrics in the preparation of the SIAR, and (2) needing fewer hard copies of the SIAR than previously budgeted. Thus, the overall result is a reduction in the budget for this Task compared to 2016.

As indicated by the right-hand column titled "Comparative Costs from 2016 Budget" in the proposed 2017 M&MP Operations Budget in Attachment 2, the proposed Budget is $39,858 lower ($313,454-$273,596) than the 2016 Budget.

Following TAC approval of the Work Plan and Budgets, they will be forwarded to the Board for their approval at the Board's October 2016 meeting.

ATTACHMENTS:	1. 2017 M&MP Work Plan 2. 2017 and 2018 M&MP Operations Budgets 3. 2017 and 2018 M&MP Capital Budgets
RECOMMENDED ACTION:	Approve, or make changes to, the attached Work Plan and/or Budgets and then recommend these for approval by the Board

ATTACHMENT 1

2017 M&MP Work Plan

Seaside Groundwater Basin Management and Monitoring Program
FY 2017 Work Plan

The tasks outlined below are those that are anticipated to be performed during 2017. Some Tasks listed below are specific to 2017, while others Tasks recur throughout the program, such as data collection and database entry, and Program Administration Tasks.
Within the context of this document the term "Consultant" refers either to a firm providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term "Contractor" refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.

M.1 Program Administration

M. 1. a **Project Budget and Controls ($0)**	Consultants will provide monthly or bimonthly invoices to the Watermaster for work performed under their contracts with the Watermaster. Consultants will perform maintenance of their internal budgets and schedules, and management of their subconsultants. The Watermaster will perform management of its Consultants.
M. 1. b **Assist with Board and TAC Agendas ($0)**	Watermaster staff will prepare Board and TAC meeting agenda materials. No assistance from Consultants is expected to be necessary to accomplish this Task.
M. 1. c. & M. 1. d **Preparation for and Attendance at Meetings ($7,000)**	The Consultants' work will require internal meetings and possibly meetings with outside governmental agencies and the public. For meetings with outside agencies, other Consultants, or any other parties which are necessary for the conduct of the work of their contracts, the Consultants will set up the meetings and prepare agendas and meeting minutes to facilitate the meetings. These may include planning and review meetings with Watermaster staff. The costs for these meetings will be included in their contracts, under the specific Tasks and/or subtasks to which the meetings relate. The only meeting costs that will be incurred under Tasks M.1.c and M.1.d will be: Those associated with attendance at TAC meetings (either in person or by teleconference connection), including providing periodic progress reports to the Watermaster for inclusion in the agenda packets for the TAC meetings, when requested by the Watermaster to do so. These progress reports will typically include project progress that has been made, problem identification and resolution, and planned upcoming work. and From time-to-time when Watermaster staff asks Consultants to make special presentations to the Watermaster Board and/or the TAC, and which are not included in the Consultant's contracts for other tasks. Appropriate Consultant representatives will attend TAC meetings when requested to do so by Watermaster Staff (either in person or by teleconference connection), but will not be asked to prepare agendas or meeting minutes. As necessary, Consultants may provide oral updates to their progress reports (prepared under Task M.1.d) at the TAC meetings.
M. 1. e **Peer Review of Documents and Reports ($2,500)**	When requested by the Watermaster staff, Consultants may be asked to assist the TAC and the Watermaster staff with peer reviews of documents and reports prepared by various other Watermaster Consultants and/or entities.
M. 1. f **QA/QC ($0)**	A Consultant (MPWMD) will provide general QA/QC support over the Seaside Basin Monitoring and Management Program. These costs are included in the other tasks.

M.1.g Prepare Documents for SGMA Reporting ($1,900)	Section 10720.8 of the Sustainable Groundwater Management Act (SGMA) requires adjudicated basins to submit annual reports. Most of the documentation that needs to be reported is already generated by the Watermaster in conjunction with preparing its own Annual Reports. However, some information such as changes in basin storage is not currently generated and will require consultant assistance to do so. This task will be used to obtain this consultant assistance, as needed.

I. 2 Comprehensive Basin Production, Water Level and Water Quality Monitoring Program

I. 2. a. Database Management

I. 2. a. 1 Conduct Ongoing Data Entry and Database Maintenance/ Enhancement ($13,452)	The database will be maintained by a Consultant (MPWMD) performing this work for the Watermaster. MPWMD will enter new data into the consolidated database, including water production volumes, water quality and water level data, and such other data as may be appropriate. Another Consultant will periodically post database information to the Watermaster's website, so it will be accessible to the public and other interested parties. No enhancements to the database are anticipated during 2017.
I. 2. a. 2 Verify Accuracy of Production Well Meters ($0)	To ensure that water production data is accurate, the well meters of the major producers were verified for accuracy during 2009 and again during 2015. No additional work of this type is anticipated during 2017.

I. 2. b. Data Collection Program

I. 2. b. 1 Site Representation and Selection ($0)	The monitoring well network review that was started in 2008 has been completed, and sites have been identified where future monitoring well(s) could be installed, if it is deemed necessary to do so in order to fill in data gaps. No further work of this type is anticipated in 2017.
I. 2. b. 2 Collect Monthly Manual Water Levels ($5,872)	Each of the monitoring wells will be visited on a monthly basis. Water levels will be determined by either taking manual water levels using an electric sounder, or by dataloggers. All wells where the use of dataloggers is feasible or appropriate have been equipped with dataloggers. It is anticipated that no additional dataloggers will need to be purchased in 2017. It is anticipated that installed dataloggers will periodically fail and need replacement. Accordingly, the cost for two replacement dataloggers at $750 apiece and $100 for installation parts has been included in this Task for budgeting purposes.

I. 2. b. 3 **Collect Quarterly Water Quality Samples.** **($56,007)**	Water quality data will be collected quarterly from certain of the monitoring wells. In 2012 water quality analyses were expanded to include barium and iodide ions, to determine the potential benefit of performing these additional analyses. These two parameters have been useful in analyzing seawater intrusion potential in other vulnerable coastal groundwater basins, and are briefly mentioned in the Watermaster's annual Seawater Intrusion Analysis Reports. These parameters were added to the annual water quality sampling list for the four Watermaster Sentinel wells (SBWM-1, SBWM-2, SBWM-3, and SBWM-4), and also for the 3 most coastal MPWMD monitoring wells (MSC, PCA, and FO-09). Barium and iodide analyses will continue being performed in 2017. Water quality data may come from water quality samples that are taken from these wells and submitted to a State Certified analytic laboratory for general mineral and physical suite of analyses, or the data may come from induction logging of these wells and/or other data gathering techniques. The Consultant or Contractor selected to perform this work will make this judgment based on consideration of costs and other factors. Under this Task in 2013 retrofitting to use the low-flow purge approach for getting water quality samples was completed on all of the wells that are sampled. This sampling equipment sits in the water column and may periodically need to be replaced or repaired. Accordingly, an allowance to perform maintenance on previously installed equipment has been included in this Task. Also, in the event a sampling pump is found to be no longer adequate due to declining groundwater levels, an allowance of $2,000 to purchase a replacement sampling pump has been included in this Task. $1,000 has been included in this Task to perform additional semi-annual water quality sampling at Sentinel Well SBMW-1 as recommended in the 2014 SIAR.
I. 2. b. 4 **Update Program Schedule and Standard Operating Procedures.** **($0)**	All recommendations from prior reviews of the data collection program have been implemented. No additional work of this type is anticipated in 2017.
I. 2. b. 5. **Monitor Well Construction** **($0)**	An additional monitoring well was installed in 2009. No further work of this type is anticipated in 2017.
I. 2. b.6 **Reports ($2,688)**	The groundwater level and quality monitoring will be conducted on a monthly, quarterly, and annual basis, as described in the Consultant's Scope of Work. Reports summarizing data collected and analyzed will be submitted to the Watermaster on a schedule to be established during the year, and will consist of: 1. A review the water quality and water level data at the end of each quarter of the Water Year, including tabularized data summaries of the WQ/WL data twice per year, once for the Q1 and Q2 period and once for the Q3 and Q4 period, so this data can be posted to WATERMASTER's website. No reporting on a quarterly basis is required but the Consultant will promptly notify the Watermaster of any missing data or data collection irregularities that were encountered during the quarterly reporting period. 2. An annual report summarizing the water quality and water level data for the Water Year, and containing tables of this data for the complete Water Year. The report will include a brief cover letter describing any missing data or data collection irregularities that were encountered during the reporting period, and any recommendations for changes to be made to the data collection program.

I.2.b.7 **CASGEM Data Submittal ($1,792)**	Compile and submit data on the Watermaster's "Voluntary Wells" into the State's CASGEM groundwater management database. The term "Voluntary Well" refers to a well that is not currently having its data reported into the CASGEM system, but for which the Watermaster obtains data. This will be done in the format and on the schedule required by the Department of Water Resources under the Sustainable Groundwater Management Act.

I. 3 Basin Management

I. 3. a. **Enhanced Seaside Basin Groundwater Model (Costs listed in subtasks below)**	The Watermaster and its consultants use a Groundwater Model for basin management purposes.
I.3.a.1 **Update the Existing Model ($0)**	The existing Model, described in the report titled "Groundwater Flow and Transport Model" dated October 1, 2007, was updated in 2009 in order to develop protective water levels, and to evaluate replenishment scenarios and develop answers to Basin management questions (Tasks I.3.a.2 and I.3.a.3). The scope and budget in 2014 for again updating the Model included the following: Step1: Update the model and check its accuracy - $10,000 Step 2: Recalibrate the model - $15,000 Step 3: Prepare report describing the work that was done - $5,000 Step 1 was completed in 2014 by incorporating recent pumping data, groundwater level data, and rainfall data, and then checking to see if the recently simulated groundwater levels match the recently measured groundwater levels. These are the principle findings and conclusions of this Step 1 work: • The model still provides reliable results in the Laguna Seca Subarea. • Although the performance of the model during the updated period is worsening, the calibration of the model remains within acceptable standards. • The northern boundary condition needs to be updated to reflect real groundwater elevation variations for the model period of 2005-2013. The behavior of the northern boundary will impact flows and the ability to calibrate the model for the area of the model that is adjacent to the northern boundary. An alternative method for defining this boundary condition will have to be developed that does not rely upon simulations from the Salinas Valley Integrated Groundwater Surface Water Model (SVIGSM). • The groundwater model should be updated in a maximum of five years and its calibration reevaluated at that time. However, if groundwater related projects are implemented in the Basin before that time, the update and calibration reevaluation may need to be performed sooner. Modeling of the Laguna Seca Subarea was performed in 2014 and a peer review of that work was performed in 2015. The peer review concluded that the model is a reasonable representation of the Seaside Basin groundwater flow system. No major errors in assumptions, data or results were identified during this peer review, and the simulated water levels generally matched observed water levels for the historical calibration simulation. The peer review recommended some aspects of the model should be explored to try to determine some differences between field-measured conditions and model-predicted conditions in some parts of the Basin, but stated that the model should be used for estimating the operational safe yield of the basin and subareas, and for simulating the effects of possible management measures. It also recommended that some additional simulations should be completed for management measures likely to be implemented. Therefore, Steps 2 and 3 will not be needed and no further work of this type is anticipated in 2017.

I. 3. a. 2 **Develop Protective Water Levels ($0)**	A series of cross-sectional models was created in 2009 in order to develop protective water levels for selected production wells, as well as for the Basin as a whole. This work is discussed in Hydrometrics' "Seaside Groundwater Basin Protective Water Elevations Technical Memorandum." In 2013 further work was started to refine these protective water levels, but it was found that the previously developed protective water levels were reasonable. Therefore, no further work of this type is anticipated.
I. 3. a. 3 **Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions ($40,000)**	In 2009 the updated Model was used to evaluate different scenarios to determine such things as the most effective methods of using supplemental water sources to replenish the Basin and/or to assess the impacts of pumping redistribution. This work is described in HydroMetrics' "Seaside Groundwater Basin Groundwater Model Report." In 2010, and again in 2013, HydroMetrics used the updated Model to develop answers to some questions associated with Basin management. Modeling performed in 2014, 2015, and 2016 led to the conclusion that groundwater levels in parts of the Laguna Seca Subarea will continue to fall even if all pumping within that subarea is discontinued, because of the influence of pumping from areas near to, but outside of, the Basin boundary. Additional modeling work may be performed in 2017 to further examine this situation.
I. 3. b. **Complete Preparation of Basin Management Action Plan ($0)**	The Watermaster's Consultant completed preparation of the Basin Management Action Plan (BMAP) in February 2009. The BMAP serves as the Watermaster's long-term seawater intrusion prevention plan. The Sections that are included in the BMAP are: Executive Summary Section 1 – Background and Purpose Section 2 – State of the Seaside Groundwater Basin Section 3 – Supplemental Water Supplies Section 4 –Groundwater Management Actions Section 5 – Recommended Management Strategies Section 6 – References The only work which may be performed on the BMAP in 2017 is discussed under Task I. 3. c.
I. 3. c. **Refine and/or Update the Basin Management Action Plan ($25,000)**	During 2017 it may be beneficial to update the BMAP based on new data, and/or knowledge that is gained from the work described under Task I. 3. a. 3. Such work might involve issues pertaining to Operational and Natural Safe Yields or pumping redistribution strategies. Updating the BMAP has been scheduled and budgeted in several of the preceding years, but was not deemed to be necessary. This task is included primarily for budgeting purposes in the event such work is deemed necessary during 2017.
I. 3. d. **Evaluate Coastal Wells for Cross-Aquifer Contamination Potential ($0)**	If seawater intrusion were to reach any of the coastal wells in any aquifer, and if a well was constructed without proper seals to prevent cross-aquifer communication, or if deterioration of the well had compromised these seals, it would be possible for the intrusion to flow from one aquifer to another. An evaluation of this was completed in 2012 and is described in MPWMD's Memorandum titled "Summary of Seaside Groundwater Basin Cross-Aquifer Contamination Wells Investigation Process and Conclusions" dated August 8, 2012. This Memorandum did not recommend performing any further work on this matter at this time, other than to incorporate into the Watermaster's Database data from wells that were newly identified by the work performed in 2012. That data has now been incorporated into the Database, and no further work on this matter is anticipated.

I. 4 Seawater Intrusion Response Plan (formerly referred to as the Seawater Intrusion Contingency Plan)

I. 4. a. **Oversight of Seawater Intrusion Detection and Tracking ($0)**	Consultants will provide general oversight over the Seawater Intrusion detection program.

I. 4. b. **Focused Hydrogeologic Evaluation ($0)**	MPWMD attempted to compile historical and current water quality data in the coastal area to provide more in-depth evaluation of conditions in the shallow Dune Sand/Aromas Sand aquifer in the vicinity of the Sand City Public Works well, where unique water quality conditions and variability have recently been observed as discussed at TAC meetings. However, it was found that no historical water quality data from Cal Am's now-abandoned wells existed, and consequently it was not possible to answer the question of why water quality in the Sand City Public Works well differs from water quality in other wells in the Basin. The Sand City desalination plant could be affecting water quality in this area, but without the prior water quality data from now-abandoned wells, this could not be determined. The results of this work were summarized in 2013 in a brief Technical Memorandum prepared by MPWMD with conclusions and recommendations, and no further work on this matter is planned.
I. 4. c. **Annual Report- Seawater Intrusion Analysis ($21,786)**	At the end of each water year, a Consultant will reanalyze all water quality data. Semi-annual chloride concentration maps will be produced for each aquifer in the basin. Time series graphs, trilinear graphs, and stiff diagram comparisons will be updated with new data. The annual EM logs will be analyzed to identify changes in seawater wedge locations. All analyses will be incorporated into an annual report that follows the format of the initial, historical data report. Potential seawater intrusion will be highlighted in the report, and if necessary, recommendations will be included. The annual report will be submitted for review by the TAC and the Board. Modifications to the report will be incorporated based on input from these bodies, as well as Watermaster staff.
I. 4. d **Complete Preparation of Seawater Intrusion Response Plan ($0)**	The Watermaster's Consultant (HydroMetrics) completed preparation of the long-tem Seawater Intrusion Response Plans (SIRP) in February 2009. The Sections that are included in the SIRP are: Section 1 – Background and Purpose Section 2 – Consistency with Other Documents Section 3 – Seawater Intrusion Indicators and Triggers Section 4 –Seawater Intrusion Contingency Actions Section 5 - References No further work on the SIRP is anticipated in 2017.
I. 4. e. **Refine and/or Update the Seawater Intrusion Response Plan ($0)**	At the beginning of 2009 it was thought that it might be beneficial or necessary to perform work to refine the SIRP and/or to update it based on new data or knowledge that was gained subsequent to the preparation of the SIRP. However, this did not prove to be necessary, and no further work of this type is anticipated in 2017.
I. 4. f. **If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan ($0)**	The SIRP will be implemented if seawater intrusion, as defined in the Plan, is determined by the Watermaster to be occurring.

ATTACHMENT 2

2017 M&MP Operations Budget

Management and Monitoring Plan Operations Budget For Tasks to be Undertaken in 2017								Comparative Costs from 2016 Budget
Task	Subtask	Sub-Subtask	Cost Description	CONSULTANTS & CONTRACTORS(3)			Total	
				MPWMD	Private Consultants	Contractors		
Labor								
			Technical Project Manager	$0	$60,000	$0	$60,000	$60,000
M.1 Program Administration								
	M.1.a		Project Budget and Controls	$0	$0	$0	$0	$0
	M.1.b		Assist with Board and TAC Agendas	$0	$0	$0	$0	$0
	M.1.c & M.1.d		Preparation for and Attendance at Meetings(8)	$0	$7,000	$0	$7,000	$7,000
	M.1.e		Peer Review of Documents and Reports(8)	$0	$2,500	$0	$2,500	$3,100
	M.1.f		QA/QC	$0	$0	$0	$0	$0
	M.1.g		SGMA Documentation Preparation	$0	$1,900	$0	$1,900	$0
I.1 Initial Phase 1 Monitoring Well Construction (Task Completed in Phase 1)								
I.2 Production, Water Level and Quality Monitoring								
	I. 2. a.		Database Management					
		I. 2. a. 1.	Conduct Ongoing Data Entry/ Database Maintenance/Enhancement	$11,052	$2,400	$0	$13,452	$13,452
		I. 2. a. 2.	Verify Accuracy of Production Well Meters	$0	$0	$0	$0	$10,000
	I. 2. b.		Data Collection Program					
		I. 2. b. 1.	Site Representation and Selection(7)	$0	$0	$0	$0	$0
		I. 2. b. 2.	Collect Monthly Water Levels(6)	$5,872	$0	$0	$5,872	$5,872
		I. 2. b. 3.	Collect Quarterly Water Quality Samples(1)(5)(6)	$31,321	$0	$24,686	$56,007	$51,906
		I. 2. b. 4.	Update Program Schedule and Standard Operating Procedures.	$0	$0	$0	$0	$0
		I. 2. b. 5.	Monitor Well Construction(7)	$0	$0	$0	$0	$0
		I. 2. b. 6.	Reports	$2,688	$0	$0	$2,688	$6,204
		I. 2. b. 7.	CASGEM Data Submittal for Watermaster's Voluntary Wells	$1,792	$0	$0	$1,792	$0
I.3 Basin Management								
	I. 3. a.		Enhanced Seaside Basin Groundwater Model	(Costs Shown in Subtasks Below)				
		I. 3. a. 1	Update the Existing Model	$0	$0	$0	$0	$20,000
		I. 3. a. 2	Develop Protective Water Levels	$0	$0	$0	$0	$0
		I. 3. a. 3	Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions(10)	$0	$40,000	$0	$40,000	$40,000
	I. 3. b.		Complete Preparation of Basin Management Action Plan	$0	$0	$0	$0	$0
	I. 3. c.		Refine and/or Update the Basin Management Action Plan (11)	$0	$25,000	$0	$25,000	$25,000
	I. 3. d		Evaluate Coastal Wells for Cross-Aquifer Contamination Potential	$0	$0	$0	$0	$0
I.4 Seawater Intrusion Contingency Plan								
	I. 4. a.		Oversight of Seawater Intrusion Detection and Tracking	$0	$0	$0	$0	$0
	I. 4. b.		Provide focused area hydrogeologic investigation for Sand City Public Works	$0	$0	$0	$0	$0
	I. 4. c.		Annual Report- Seawater Intrusion Analysis	$896	$20,890	$0	$21,786	$28,678
	I. 4. d.		Complete Preparation of Seawater Intrusion Response Plan(2)	$0	$0	$0	$0	$0
	I. 4. e.		Refine and/or Update the Seawater Intrusion Response Plan(2) (9)	$0	$0	$0	$0	$0
	I. 4. f.		If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan(2)	(No Costs are Included for This Task, as This Task Will Likely Not be Necessary During 2017. If it Does Become Necessary, Use of Contingency Funds or a Budget Modification Will Likely be Necessary)				$0
		TOTALS CONSULTANTS & CONTRACTORS		**$53,621**	**$159,690**	**$24,686**		
SUBTOTAL not including Technical Program Manager =							$177,997	$211,212
Contingency (not including Technical Program Manager) @ 20%(4)=							$35,599	$42,242
Technical Program Manager =							$60,000	$60,000
TOTAL=							**$273,596**	**$313,454**

Footnotes:

(1) An outside contractor would be used to perform the induction logging, and potentially to also collect some water quality samples in conjunction with doing the induction logging. MPWMD is expected to perform portions of the work of this Subtask, and will be the party that subcontracts with the Contractor to perform the induction logging and sample collection work on certain of the wells.

(2) The response plan would only be implemented in the event sea water intrusion is determined to be occurring.

(3) Within the context of this document the term "Consultant" refers either to a Private Consultant providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term "Contractor" refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.

(4) Due to the uncertainties of the exact scopes of some of the Tasks listed above at the time of preparation of this Budget, e.g. Tasks I.3.a.3 and I.3.c, it is recommended that a 20% Contingency be included in the Budget.

(5) Includes $1,000 to maintain equipment previously installed for this purpose. Also includes lab costs to analyze for barium and iodide ions in certain of these wells as was done in preceding years beginning in 2012.

(6) Does not include costs for MPWMD to collect water level data or water quality samples from wells other than those that are part of the basic monitoring well network, i.e. for private well owners who have requested that the Watermaster obtain this data for them. Costs to obtain that data are to be reimbursed to the Watermaster by those well owners, so there should be no net cost to the Watermaster for that portion of the work under these Tasks.

(7) No additional monitoring well is expected to be constructed in 2016.

(8) For HydroMetrics to provide hydrogeologic consulting assistance to the Watermaster, beyond that associated with performing other Tasks, when requested to do so by the Technical Program Manager.

(9) If work under this Task is found to be necessary, it will be funded through the Contingency line item in this Budget.

(10) If requested by the Board.

(11) If necessary to reflect knowledge gained from modeling work or other data sources.

ATTACHMENT 3

2018 M&MP Operations Budget

Management and Monitoring Plan Operations Budget
For Tasks to be Undertaken in 2018[12]

Task	Subtask	Sub-Subtask	Cost Description	CONSULTANTS & CONTRACTORS[3]			Total
				MPWMD	Private Consultants	Contractors	
Labor							
			Technical Project Manager	$0	$60,000	$0	$60,000
M.1 Program Administration							
	M.1.a		Project Budget and Controls	$0	$0	$0	$0
	M.1.b		Assist with Board and TAC Agendas	$0	$0	$0	$0
	M.1.c & M.1.d		Preparation for and Attendance of at Meetings[8]	$0	$7,210	$0	$7,210
	M.1.e		Peer Review of Documents and Reports[8]	$0	$2,575	$0	$2,575
	M.1.f		QA/QC	$0	$0	$0	$0
	M.1.g		SGMA Documentation Preparation	$0	$1,957	$0	$1,957
I.1 Initial Phase 1 Monitoring Well Construction (Task Completed in Phase 1)							
I.2 Production, Water Level and Quality Monitoring							
	I. 2. a.		Database Management				
		I. 2. a. 1.	Conduct Ongoing Data Entry/ Database Maintenance/Enhancement	$11,384	$2,472	$0	$13,856
		I. 2. a. 2.	Verify Accuracy of Production Well Meters	$0	$0	$0	$0
	I. 2. b.		Data Collection Program				
		I. 2. b. 1.	Site Representation and Selection[7]	$0	$0	$0	$0
		I. 2. b. 2.	Collect Monthly Water Levels[6]	$6,048	$0	$0	$6,048
		I. 2. b. 3.	Collect Quarterly Water Quality Samples[1][5][6]	$32,261	$0	$25,427	$57,687
		I. 2. b. 4.	Update Program Schedule and Standard Operating Procedures.	$0	$0	$0	$0
		I. 2. b. 5.	Monitor Well Construction[7]	$0	$0	$0	$0
		I. 2. b. 6.	Reports	$1,846	$0	$0	$1,846
I.3 Basin Management							
	I. 3. a.		Enhanced Seaside Basin Groundwater Model	(Costs Shown in Subtasks Below)			
		I. 3. a. 1	Update the Existing Model	$0	$0	$0	$0
		I. 3. a. 2	Develop Protective Water Levels	$0	$0	$0	$0
		I. 3. a. 3	Evaluate Replenishment Scenarios and Develop Answers to Basin Management Questions	$0	$41,200	$0	$41,200
	I. 3. b.		Complete Preparation of Basin Management Action Plan	$0	$0	$0	$0
	I. 3. c.		Refine and/or Update the Basin Management Action Plan [11][13]	$0	$25,750	$0	$25,750
	I. 3. d		Evaluate Coastal Wells for Cross-Aquifer Contamination Potential[14]	$0	$0	$0	$0
I.4 Seawater Intrusion Contingency Plan							
	I. 4. a.		Oversight of Seawater Intrusion Detection and Tracking	$0	$0	$0	$0
	I. 4. b.		Analyze and Map Water Quality from Coastal Monitoring Wells	(Costs Included Under I.4.a)			
	I. 4. c.		Annual Report- Seawater Intrusion Analysis	$923	$21,517	$0	$22,440
	I. 4. d.		Complete Preparation of Seawater Intrusion Response Plan[2]	$0	$0	$0	$0
	I. 4. e.		Refine and/or Update the Seawater Intrusion Response Plan[2] [9]	$0	$0	$0	$0
	I. 4. f.		If Seawater Intrusion is Determined to be Occurring, Implement Contingency Response Plan[2]	(No Costs are Included for This Task, as This Task Will Likely Not be Necessary During 2016. If it Does Become Necessary, Use of Contingency Funds or a Budget Modification Will Likely be Necessary)			
		TOTALS CONSULTANTS & CONTRACTORS		**$52,461**	**$162,681**	**$25,427**	
						SUBTOTAL not including Technical Program Manager =	$180,568
						Contingency (not including Technical Program Manager) @ 20%[4]=	$36,114
						Technical Program Manager	$60,000
						TOTAL=	**$276,682**

Footnotes:

(1) An outside contractor would be used to perform the induction logging, and potentially to also collect some water quality samples in conjunction with doing the induction logging. MPWMD is expected to perform portions of the work of this Subtask, and the Watermaster will be the party that subcontracts with the Contractor to perform the induction logging and sample collection work on certain of the wells.

(2) The response plan would only be implemented in the event sea water intrusion is determined to be occurring.

(3) Within the context of this document the term "Consultant" refers either to a Private Consultant providing professional engineering or other types of technical services, or to the Monterey Peninsula Water Management District (MPWMD). The term "Contractor" refers to a firm providing construction or field services such as well drilling, induction logging, or meter calibration.

(4) Due to the uncertainties of the exact scopes of some of the Tasks listed above at the time of preparation of this Budget, e.g. Tasks I.3.a.3 and I.3.c, it is recommended that a 20% Contingency be included in the Budget.

(5) A portion of this cost is for maintaining sampling equipment that was installed in prior years.

(6) Does not include costs for MPWMD to collect water level data or water quality samples from wells other than those that are part of the basic monitoring well network, i.e. for private well owners who have requested that the Watermaster obtain this data for them. Costs to obtain that data are to be reimbursed to the Watermaster by those well owners, so there should be no net cost to the Watermaster for that portion of the work under

(7) No additional monitoring well is expected to be constructed in 2018.

(8) For HydroMetrics to provide hydrogeologic consulting assistance to the Watermaster, beyond that associated with performing other specified Tasks, when requested to do so by the Technical Program Manager.

(9) If work under this Task is found to be necessary, it will be funded through the Contingency line item in this Budget.

(10) Not used.

(11) If necessary to reflect knowledge gained from modeling work or other data sources.

(12) Includes a 3% inflation factor on most annually recurring costs in the 2017 Budget, except the Technical Program Manager cost which has no inflation factor applied to it.

(13) Costs included for these Tasks would only be incurred if the Board determined to defer this work from 2017 to 2018, or determined to perform additional work beyond that performed in 2017.

(14) No further work on this Task is anticipated in 2018.

ATTACHMENT 4

Management and Monitoring Plan Capital Budget For Tasks to be Undertaken in 2017

No Capital projects are anticipated to be undertaken in 2017, so this budget is $0.

Management and Monitoring Plan Capital Budget For Tasks to be Undertaken in 2018

No Capital projects are anticipated to be undertaken in 2018, so this budget is $0.

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 14, 2016
AGENDA ITEM:	5
AGENDA TITLE:	Schedule
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:

As a regular part of each monthly TAC meeting, I will provide the TAC with an updated Schedule of the activities being performed by the Watermaster, its consultants, and the public entity, MPWMD, which is performing certain portions of the work.

Attached is the most recent update of the Work Schedule for FY 2016. 1

As reported at the TAC's August 2016 meeting, we do not normally have an October meeting since during that month our consultants will still be preparing their annual report items that will go into the Watermaster's Annual Report. For this reason there will be no October 2016 TAC meeting.

The November 2016 TAC meeting date will likely be pushed back until later in the month to allow sufficient time for the consultants to complete their work and for me to draft the Annual Report so it can be reviewed by the TAC at the November TAC meeting. The meeting will most likely be set for Wednesday November 16. The date for the November 2016 TAC meeting will be communicated via email to TAC members in early November.

ATTACHMENTS:	Schedule of Work Activities for FY 2016
RECOMMENDED ACTION:	Provide Input to Technical Program Manager Regarding Any Corrections or Additions to the Schedule

Seaside Basin Watermaster
Monitoring and Management Program
2016 Work Schedule

ID	Task Name
1	***CRITICAL PROJECT MILESTONES ASSOCIATED WITH TAC, BOARD, AND/OR CONSULTANT WORK***
2	**2016 Administration, Operations and Replenishment Budgets**
3	Prepare M&MP Draft Budgets (Same as Task 19)
4	TAC Approves M&MP Budgets (Same as Task 20)
5	Board Approves M&MP Budgets (Same as Task 21)
6	**Watermaster Prepares Quarterly Water Production, Water Level, and Water Quality Reports**
7	Watermaster Prepares Combined Quarterly Water Production, Water Level, and Water Quality Reports for 1st & 2nd Quarters (Same as Task 41)
8	Watermaster Prepares Annual Water Production, Water Level, and Water Quality Report for 2016 (Same as Task 42)
9	**Replenishment Assessment Unit Costs for Water Year 2017**
10	B&F Committee Develops Replenishment Assessment Unit Cost for 2017 Water Year
11	If Requested, TAC Provides Assistance to B&F Committee in Development of 2017 Water Year Replenishment Assessment Unit Cost
12	Board Adopts and Declares 2017 Water Year Replenishment Assessment Unit Cost
13	**Replenishment Assessments for Water Year 2016**
14	Watermaster Prepares Replenishment Assessments for Water Year 2016
15	Watermaster Board Approves Replenishment Assessments for Water Year 2016 (At December Meeting)
16	Watermaster Levies Replenishment Assessment for 2016
17	**Monitoring & Management Program (M&MP) Budgets for 2017 and 2018**

Seaside Basin Watermaster
Monitoring and Management Program
2016 Work Schedule

ID	Task Name	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
		2016																201					
18	Preliminary Discussion of Potential Scope of Work for 2017 M&MP											Completed											
19	Prepare Draft 2017 M&MP Work Plan and 2017 and 2018 O&M and Capital Budgets												Completed										
20	TAC approves Draft 2017 M&MP Work Plan and 2017 and 2018 O&M and Capital Budgets													9/14									
21	Board approves 2017 M&MP O&M and Capital Budgets														10/5								
22	**2015 Annual Report (Note: Schedule Reflects Court Approval of Later Submittal Date for Annual Report)**																						
23	Prepare Preliminary Draft 2016 Annual Report																						
24	TAC Provides Input on Preliminary Draft 2016 Annual Report															11/16							
25	Prepare Draft 2016 Annual Report (Incorporating TAC Input)																						
26	Board Provides Input on Draft 2016 Annual Report (At December Board Meeting)																12/7						
27	Prepare Final 2016 Annual Report (Incorporating Board Input)																						
28	Watermaster Submits Final 2016 Annual Report to Judge																12/15						
29	***MANAGEMENT***																						
30	**M.1 PROGRAM ADMINISTRATION**																						
31	Prepare Initial Consultant Contracts for 2017																						
32	TAC Approval of Initial Consultant Contracts for 2017															11/16							
33	Board Approval of Initial Consultant Contracts for 2017																12/7						
34	**M.1.g – Sustainable Groundwater Management Act Reporting Requirements**																						
35	HydroMetrics Prepares Draft Groundwater Storage Analysis					COMPLETE																	
36	TAC Reviews HydroMetrics Draft Storage Analysis						COMPLETE																

Seaside Basin Watermaster
Monitoring and Management Program
2016 Work Schedule

ID	Task Name	2016																201					
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
37	HydroMetrics Revises Draft Storage Analysis if Necessary						COMPLETE																
38	Submit SGMA Documentation to DWR						COMPLETE																
39	***IMPLEMENTATION***																						
40	**I.2.a DATABASE MANAGEMENT**																						
41	**I.2.a.1 Conduct Ongoing Data Entry/Database Maintenance**																						
42	**I.2.b DATA COLLECTION PROGRAM**																						
43	**I.2.b.2 Collect Monthly Water Levels (MPWMD)**																						
44	**I.2.b.3 Collect Quarterly Water Quality Samples (MPWMD)**																						
45	**I.2.b.6 Reports (from MPWMD)**																						
46	Watermaster Prepares Combined Quarterly Water Production, Water Level, and Water Quality Reports for 1st & 2nd Quarters								These will not be provided														
47	Watermaster Prepares Annual Water Production, Water Level, and Water Quality Report for 2016															10/31							
48	Watermaster Prepares Report Regarding Long-Term Trends in Water Levels in Monitoring Wells										Delayed until 2017												
49	**I.3.a ENHANCED SEASIDE BASIN GROUNDWATER MODEL**																						
50	TAC Assists Board in Developing Work Plan to Address LSSA Modeling Results					COMPLETE																	
51	Develop and Schedule Additional Tasks as Directed by Board					IF REQUESTED BY THE BOARD																	
52	**I.3.c Refine and/or Update the BMAP**		NO WORK SCHEDULED UNTIL TAC DIRECTION PROVIDED TO RESUME DISCUSSION																				
53	**I.4.c Annual Seawater Intrusion Analysis Report (SIAR)**																						
54	HydroMetrics Provides Draft SIAR to Watermaster															11/9							
55	TAC Approves Annual Seawater Intrusion Analysis Report (SIAR)																11/16						

Seaside Basin Watermaster
Monitoring and Management Program
2016 Work Schedule

ID	Task Name	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
						2016												201					
56	Board Approves Annual Seawater Intrusion Analysis Report (SIAR)																12/7						
57	**I.4.d Complete Preparation of Seawater Intrusion Response Plan (SIRP)**					**WORK COMPLETED - NO FURTHER WORK PLANNED IN 2016**																	
58	**I.4.e Refine and/or Update the SIRP**								**ONLY IF FOUND TO BE NECESSARY**														

SEASIDE BASIN WATER MASTER
TECHNICAL ADVISORY COMMITTEE

**** * * AGENDA TRANSMITTAL FORM * * ****

MEETING DATE:	September 14, 2016
AGENDA ITEM:	6
AGENDA TITLE:	Other Business
PREPARED BY:	Robert Jaques, Technical Program Manager

SUMMARY:
The "Other Business" agenda item is intended to provide an opportunity for TAC members or others present at the meeting to discuss items not on the agenda that may be of interest to the TAC.

ATTACHMENTS:	None
RECOMMENDED ACTION:	None required – information only